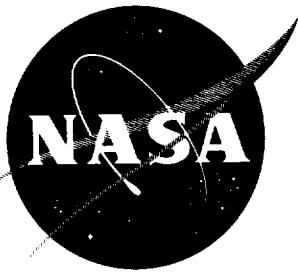


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# TECHNICAL NOTE

D-1819

## TABLES FOR THE INTEGRAL OF THE CIRCULAR BIVARIATE NORMAL FREQUENCY FUNCTION

By William L. Weaver and Kathleen C. Wicker

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TABLES FOR THE INTEGRAL OF THE CIRCULAR  
BIVARIATE NORMAL FREQUENCY FUNCTION

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SUMMARY

Tables are presented for the integral of the offset circular bivariate normal (circular binormal) distribution function over two types of regions of the distribution: (1) circles centered at the origin of coordinate axes, and (2) infinite sectors bounded on one side by an infinite radius vector passing through the origin. The tables can be used to determine the integral of the circular function over annular regions about the origin of coordinate axes and the integral over regions bounded by two infinite radius vectors of arbitrary direction. The evaluation of the integral was performed numerically by using the quadrature formulas of Gauss.

INTRODUCTION

Several tables of the bivariate normal (binormal) distribution integral exist (refs. 1 to 5) which provide values of this integral over particular types of regions of interest. However, in searching for particular values of the integral needed for the work of reference 6 it was found that these existing tables did not fill the need. Accordingly, two fairly extensive tables of the required integral were calculated with an IBM 7090 data processing system. These two tables are being made available in this report not only for use with NASA Technical Note D-1249 (ref. 6) but also in the hope that they will be useful to others working with the binormal distribution.

The first table lists values for the integral of the circular binormal function over offset circular regions. This table overlaps some existing tables (for instance, the table in ref. 5). The advantages of this table over the table in reference 5 are that it covers a larger range of distribution parameters and that the probability values are listed up to 0.99999 for the entire range of parameters.

The second table lists values for the integral of the circular binormal function over offset infinite sectors for the same range of distribution parameters as for the first table. Reference 1 is the only publication found that includes values for the circular binormal integral over this type of region. The entries

of that table are not given directly as a function of wedge angle and use of reference 1 is complicated by a requirement for additional tables.

## SYMBOLS

A	constant defined by equation (2a)
B	constant defined by equation (6a)
C	ratio of standard deviations ( $\sigma_y/\sigma_x$ )
G	variable defined by equation (2b)
H	variable defined by equation (6b)
f( )	probability density function of designated variables
P( )	probability that designated variables are between specified limits
R	standardized polar coordinate ( $r/\sigma_x$ for general distribution and $r/\sigma$ for circular distribution)
$\bar{R} = \bar{r}/\sigma$	
$R_{max}$	value of R necessary to make $P(R) = 0.99999$
x, y	Cartesian coordinates (fig. 1)
r, $\theta$	polar coordinates (fig. 1)
$\bar{x}, \bar{y}$	coordinates of center of probability distribution (fig. 1)
$\bar{r}, \bar{\theta}$	
$\rho$	correlation coefficient of x and y components
$\sigma$	standard deviation of circular distribution (fig. 1)
$(\sigma_x, \sigma_y)$	standard deviation of x and y components
$\Phi = \theta - \bar{\theta}$	

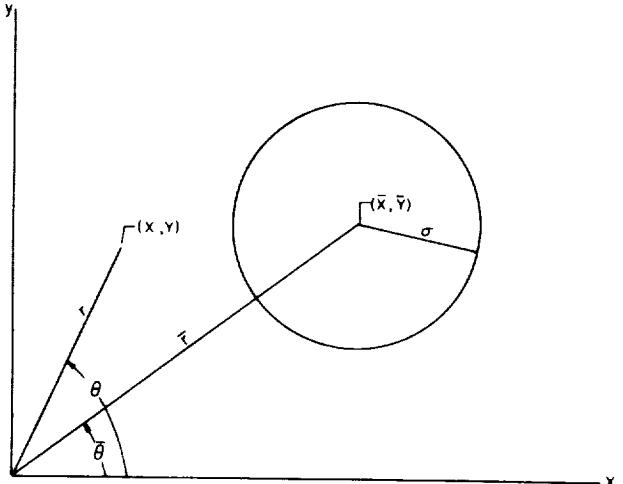


Figure 1.- Geometric description of symbols.

## DERIVATION OF THE TABLES

The general bivariate normal (general binormal) distribution function in Cartesian coordinates is

$$f(x, y) = A \exp\left(-\frac{G}{2}\right) \quad (1)$$

where

$$A = \frac{1}{2\pi} \frac{1}{\sigma_x \sigma_y} \frac{1}{\sqrt{1 - \rho^2}} \quad (2a)$$

and

$$G = \frac{1}{1 - \rho^2} \left[ \left( \frac{x - \bar{x}}{\sigma_x} \right)^2 - \frac{2\rho(x - \bar{x})(y - \bar{y})}{\sigma_x \sigma_y} + \left( \frac{y - \bar{y}}{\sigma_y} \right)^2 \right] \quad (2b)$$

The probability integral of this function (eq. (1)) over a region in the Cartesian coordinate plane is

$$P(x, y) = A \iint \exp\left(-\frac{G}{2}\right) dx dy \quad (3)$$

For the present calculations, the standardized polar form was more convenient. It is obtained by means of the following substitutions:

$$\left. \begin{array}{ll} x = r \cos \theta & \bar{x} = \bar{r} \cos \bar{\theta} \\ y = r \sin \theta & \bar{y} = \bar{r} \sin \bar{\theta} \\ R = \frac{r}{\sigma_x} & \bar{R} = \frac{\bar{r}}{\sigma_x} \\ C = \frac{\sigma_y}{\sigma_x} & \end{array} \right\} \quad (4)$$

Note that  $\bar{r}$  and  $\bar{\theta}$  are not necessarily the means of  $r$  and  $\theta$ .

The standardized polar form of the binormal probability integral is

$$P(R, \theta) = B \iint \exp\left(-\frac{H}{2}\right) R dR d\theta \quad (5)$$

where

$$B = \frac{1}{2\pi C} \frac{1}{\sqrt{1 - \rho^2}} \quad (6a)$$

and

$$H = \frac{1}{1 - \rho^2} \left\{ R^2 \left( \cos^2 \theta + \frac{1}{C^2} \sin^2 \theta - \frac{2\rho}{C} \cos \theta \sin \theta \right) + \bar{R}^2 \left( \cos^2 \bar{\theta} + \frac{1}{C^2} \sin^2 \bar{\theta} - \frac{2\rho}{C} \cos \bar{\theta} \sin \bar{\theta} \right) - 2R\bar{R} \left[ \cos \theta \cos \bar{\theta} + \frac{1}{C^2} \sin \theta \sin \bar{\theta} - \frac{\rho}{C} \sin(\theta + \bar{\theta}) \right] \right\} \quad (6b)$$

For the special case of the circular function where

$$C = 1, \quad \sigma_x = \sigma_y = \sigma, \quad \rho = 0$$

equation (5) reduces to

$$P(R, \Phi) = \frac{1}{2\pi} \iint \exp \left[ -\frac{1}{2} (R^2 + \bar{R}^2 - 2R\bar{R} \cos \Phi) \right] R dR d\Phi \quad (7)$$

Equation (7) was integrated to obtain the probability tables presented herein.

#### USE OF TABLES

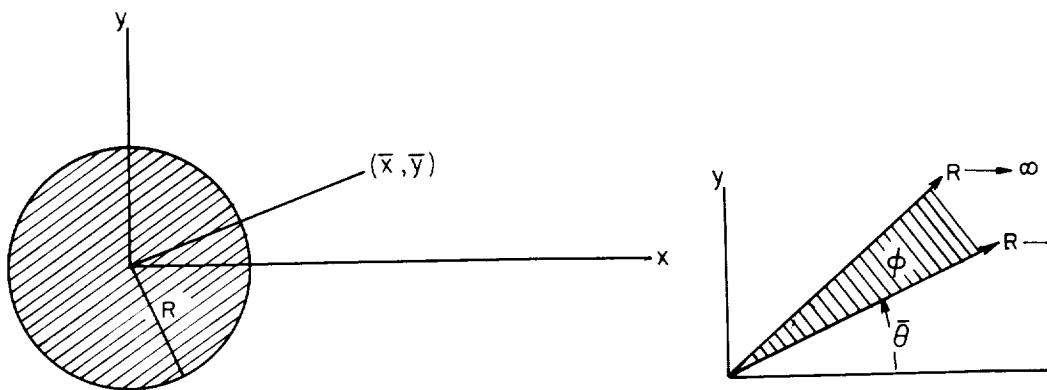
##### Integration Over Circles About the Origin

Table I lists the probabilities  $P(R)$  that the magnitude of the standardized radius vector will not be exceeded if the vectors follow a circular binormal distribution. The area of integration is shown in figure 2(a). Only the magnitude of the mean radius vector and the standard deviation of the distribution need be known. The quantities  $R$  and  $\bar{R}$  in the table are the standardized values of  $r$  and  $\bar{r}$  defined as follows:

$$R = r/\sigma \quad \text{and} \quad \bar{R} = \bar{r}/\sigma \quad (8)$$

Table I may also be used to determine the probability that the magnitude of a radius vector will lie in a given range, for example, between  $r_1$  and  $r_2$ . This probability is simply  $P(r_2) - P(r_1)$  where  $R_1$  and  $R_2$  are the standardized values of  $r_1$  and  $r_2$ , the radii of the two circles which define the desired annulus of probability (see fig. 3(a)).

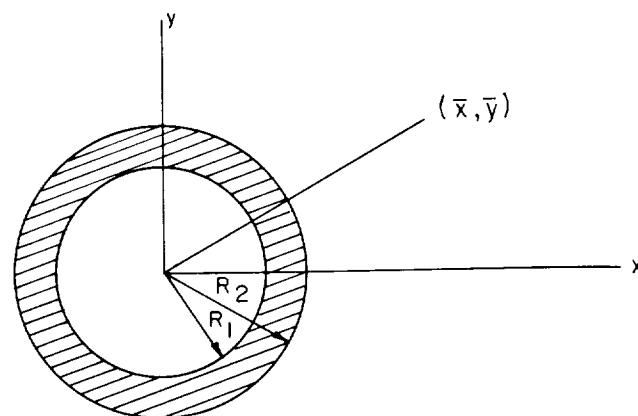
Table I was generated by evaluating equation (7) between the limits ( $\Phi = 2\pi$ ,  $\Phi = 0$ ) and ( $R = R$ ,  $R = 0$ ). The computation was performed numerically by using



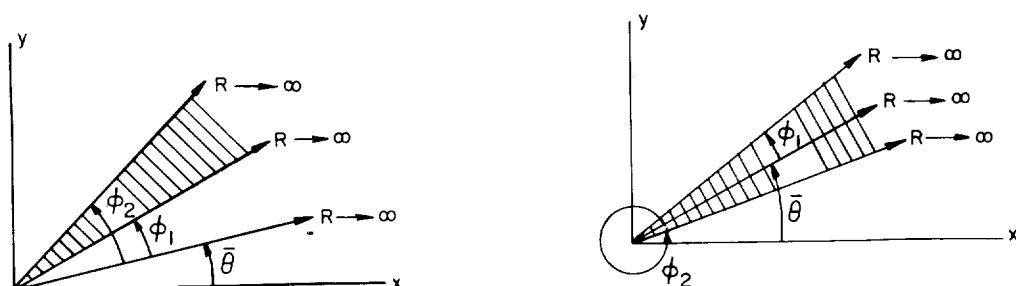
(a) For table I.

(b) For table III.

Figure 2.- Integration regions for probabilities listed in tables.



(a) For table I.



(Integration does not include  $\Phi = 0.$ )

(Integration includes  $\Phi = 0.$ )

(b) For table II.

Figure 3.- Integration regions for which probabilities are derivable from tables.

the quadrature formulas of Gauss. (See ref. 7.) Integration intervals for  $\Phi$  and  $R$  were selected such that the integrals would be accurate to within  $\pm 0.00001$ . Where the present results can be compared with those of reference 5, they agree to all five decimal places.

### Integration Over Infinite Sectors

Table II lists the probabilities that the direction of a radius vector is within the specified angle from the mean ( $\Phi = 0$  or  $\theta = \bar{\theta}$ ). If  $\Phi_1$  and  $\Phi_2$  are any two specified angles given in table II, and if  $\Phi_2$  is taken as the larger angle ( $\Phi_1 < \Phi_2$ ), table II gives the probability that  $\Phi$  is between  $\Phi_1$  and  $\Phi_2$  as follows:

If area of integration does not include  $\Phi = 0$ ,

$$P(\Phi_2) - P(\Phi_1) \quad (9a)$$

and, if area of integration includes  $\Phi = 0$ ,

$$1 - [P(\Phi_2) - P(\Phi_1)] \quad (9b)$$

(See fig. 3(b).)

Table II was generated by evaluating equation (7) between the limits ( $\Phi = \Phi$ ,  $\Phi = 0$ ) and ( $R = \infty$ ,  $R = 0$ ). (See fig. 2(b).) For this integration, the actual upper limit of  $R$  (i.e.,  $R_{\max}$ ) was taken as that value for which the corresponding integral of table I was at least 0.99999. Accordingly, the entries of table II are considered to be accurate to within  $\pm 0.00001$ .

Although the circular distribution is symmetrical about  $\Phi = 0$ , that is,  $P(\Phi) = P(-\Phi)$ , probability values have been tabulated in table II from  $\Phi = 180^\circ$  to  $\Phi = 360^\circ$  as well as from  $\Phi = 0^\circ$  to  $\Phi = 180^\circ$  for the convenience of the user.

### Example

Given the circular binormal distribution

$$\bar{r} = 60$$

$$\bar{\theta} = 40^\circ$$

$$\sigma = 75$$

use tables to find the following:

1. Probability that the magnitude of the vector will not exceed 180
2. Probability that the magnitude of the vector will be between 30 and 180
3. Probability that the vector will be in the first quadrant; that is, between 0 and  $90^\circ$

Solution for parts 1 and 2:

$$\bar{R} = \frac{60}{75} = 0.8$$

$$R_1 = \frac{30}{75} = 0.4$$

$$R_2 = \frac{180}{75} = 2.4$$

From table I:

$$P(R_1) = P(0.4) = 0.05654$$

$$P(R_2) = P(2.4) = 0.88892$$

Thus the answers to parts 1 and 2 are:

1.  $P(r \leq 180) = P(2.4) = 0.88892$
2.  $P(30 \leq r \leq 180) = P(2.4) - P(0.4) = 0.83238$

Solution for part 3:

$$\left. \begin{aligned} \bar{R} &= 0.8 \\ \Phi_1 &= \theta_2 - \bar{\theta} = 50^\circ \\ \Phi_2 &= \theta_1 - \bar{\theta} = -40^\circ = 320^\circ \end{aligned} \right\}$$

Note that the larger angle is taken as  $\Phi_2$ .

Since the area of integration includes  $\Phi = 0$  (see second drawing in fig. 3(b)) the probability is found from table II by:

$$\begin{aligned} 3. \quad P(0 \leq \theta \leq 90^\circ) &= 1 - [P(320^\circ) - P(50^\circ)] \\ &= 0.50842 \end{aligned}$$

Alternatively:

$$\begin{aligned} P(0 \leq \theta \leq 90^\circ) &= P(50^\circ) + P(-40^\circ) \\ &= P(50^\circ) + P(40^\circ) \\ &= 0.50842 \end{aligned}$$

Langley Research Center,  
National Aeronautics and Space Administration,  
Langley Station, Hampton, Va., April 15, 1963.

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Table I

Values for the Probability Integral

$$P(R) = \frac{1}{2\pi} \int_0^{2\pi} \int_0^R \exp\left[-\frac{1}{2}(R^2 + \bar{R}^2 - 2R\bar{R} \cos \Phi)\right] R dR d\Phi$$

for  $\bar{R} = 0.1$  to  $\bar{R} = 6.0$  in intervals of 0.1

$R = 0.1$  to  $R \geq R_{\max}$  in intervals of 0.1

and  $\bar{R} = 6.0$  to  $\bar{R} = 25.0$  in intervals of 1.0

$R = 0.5$  to  $R \geq R_{\max}$  in intervals of 0.5

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R

(a)  $\bar{R} = 0.1$  to  $1.0$ 

R	P(R) for $\bar{R}$ of -									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
0.1	0.00496	0.00489	0.00477	0.00460	0.00440	0.00417	0.00391	0.00362	0.00333	0.00303
0.2	0.01970	0.01941	0.01894	0.01829	0.01750	0.01657	0.01554	0.01442	0.01326	0.01207
0.3	0.04379	0.04315	0.04211	0.04069	0.03894	0.03690	0.03463	0.03218	0.02961	0.02699
0.4	0.07652	0.07542	0.07363	0.07120	0.06818	0.06468	0.06076	0.05654	0.05210	0.04756
0.5	0.11695	0.11532	0.11264	0.10900	0.10449	0.09923	0.09336	0.08701	0.08033	0.07347
0.6	0.16398	0.16175	0.15810	0.15313	0.14697	0.13977	0.13171	0.12299	0.11380	0.10434
0.7	0.21634	0.21349	0.20883	0.20248	0.19459	0.18537	0.17502	0.16380	0.15194	0.13970
0.8	0.27269	0.26924	0.26359	0.25587	0.24628	0.23503	0.22240	0.20866	0.19410	0.17901
0.9	0.33168	0.32766	0.32108	0.31209	0.30089	0.28773	0.27291	0.25675	0.23956	0.22170
1.0	0.39196	0.38745	0.38005	0.36992	0.35729	0.34241	0.32561	0.30722	0.28760	0.26712
1.1	0.45228	0.44736	0.43929	0.42822	0.41438	0.39805	0.37954	0.35922	0.33745	0.31462
1.2	0.51150	0.50528	0.49770	0.48592	0.47115	0.45368	0.43381	0.41191	0.38835	0.36353
1.3	0.56863	0.56322	0.55432	0.54207	0.52668	0.50841	0.48756	0.46449	0.43956	0.41315
1.4	0.62285	0.61737	0.60833	0.59586	0.58016	0.56146	0.54004	0.51623	0.49037	0.46284
1.5	0.67352	0.66807	0.65907	0.64664	0.63093	0.61216	0.59058	0.56647	0.54014	0.51196
1.6	0.72018	0.71487	0.70608	0.69390	0.67848	0.65998	0.63861	0.61462	0.58830	0.55993
1.7	0.76255	0.75746	0.74902	0.73731	0.72242	0.70450	0.68370	0.66023	0.63432	0.60623
1.8	0.80050	0.79570	0.78774	0.77665	0.76252	0.74543	0.72551	0.70291	0.67781	0.65041
1.9	0.83404	0.82959	0.82220	0.81187	0.79867	0.78263	0.76384	0.74239	0.71842	0.69209
2.0	0.86331	0.85925	0.85249	0.84302	0.83086	0.81603	0.79856	0.77850	0.75595	0.73099
2.1	0.88853	0.88488	0.87879	0.87023	0.85920	0.84568	0.82966	0.81117	0.79023	0.76689
2.2	0.91000	0.90677	0.90135	0.89373	0.88386	0.87170	0.85723	0.84040	0.82121	0.79966
2.3	0.92805	0.92523	0.92048	0.91378	0.90507	0.89429	0.88138	0.86627	0.84891	0.82927
2.4	0.94306	0.94062	0.93652	0.93071	0.92313	0.91369	0.90231	0.88892	0.87341	0.85574
2.5	0.95538	0.95330	0.94981	0.94484	0.93832	0.93016	0.92027	0.90854	0.89486	0.87915
2.6	0.96538	0.96363	0.96069	0.95650	0.95096	0.94400	0.93551	0.92536	0.91344	0.89963
2.7	0.97340	0.97196	0.96952	0.96601	0.96138	0.95551	0.94830	0.93963	0.92936	0.91737
2.8	0.97977	0.97859	0.97658	0.97370	0.96986	0.96498	0.95893	0.95161	0.94287	0.93257
2.9	0.98476	0.98381	0.98219	0.97984	0.97670	0.97268	0.96767	0.96156	0.95420	0.94546
3.0	0.98864	0.98788	0.98658	0.98469	0.98216	0.97889	0.97479	0.96974	0.96362	0.95628
3.1	0.99161	0.99101	0.98998	0.98849	0.98646	0.98383	0.98051	0.97640	0.97136	0.96527
3.2	0.99387	0.99340	0.99260	0.99142	0.98982	0.98774	0.98508	0.98176	0.97766	0.97266
3.3	0.99556	0.99520	0.99458	0.99367	0.99242	0.99078	0.98868	0.98603	0.98273	0.97868
3.4	0.99682	0.99655	0.99607	0.99537	0.99441	0.99314	0.99149	0.98940	0.98678	0.98352
3.5	0.99774	0.99754	0.99718	0.99665	0.99592	0.99494	0.99367	0.99203	0.98997	0.98738
3.6	0.99842	0.99826	0.99800	0.99760	0.99704	0.99630	0.99533	0.99407	0.99246	0.99042
3.7	0.99890	0.99879	0.99859	0.99829	0.99788	0.99732	0.99659	0.99562	0.99438	0.99280
3.8	0.99924	0.99916	0.99902	0.99880	0.99850	0.99808	0.99753	0.99680	0.99586	0.99464
3.9	0.99948	0.99942	0.99932	0.99916	0.99894	0.99864	0.99823	0.99768	0.99697	0.99605
4.0	0.99965	0.99961	0.99954	0.99942	0.99926	0.99904	0.99874	0.99834	0.99781	0.99711
4.1	0.99977	0.99974	0.99969	0.99961	0.99949	0.99933	0.99911	0.99882	0.99843	0.99791
4.2	0.99985	0.99983	0.99979	0.99973	0.99965	0.99954	0.99938	0.99917	0.99888	0.99850
4.3	0.99990	0.99988	0.99986	0.99982	0.99976	0.99968	0.99957	0.99942	0.99921	0.99893
4.4	0.99993	0.99992	0.99991	0.99988	0.99984	0.99979	0.99971	0.99960	0.99945	0.99925
4.5	0.99996	0.99995	0.99994	0.99992	0.99990	0.99986	0.99980	0.99973	0.99962	0.99948
4.6	0.99997	0.99997	0.99996	0.99995	0.99993	0.99990	0.99987	0.99981	0.99974	0.99964
4.7	0.99998	0.99998	0.99998	0.99997	0.99995	0.99994	0.99991	0.99988	0.99982	0.99975
4.8	0.99999	0.99999	0.99998	0.99998	0.99997	0.99996	0.99994	0.99992	0.99988	0.99983
4.9	0.99999	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99995	0.99992	0.99989
5.0	1.00000	0.99999	0.99999	0.99999	0.99999	0.99998	0.99998	0.99996	0.99995	0.99995
5.1	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99998	0.99997	0.99995
5.2	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997
5.3	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998
5.4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999
5.5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Continued

(b)  $\bar{R} = 1.1$  to 2.0

R	P(R) for $\bar{R}$ of -									
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
0.1	0.00273	0.00243	0.00215	0.00188	0.00162	0.00139	0.00118	0.00099	0.00082	0.00068
0.2	0.01088	0.00971	0.00858	0.00750	0.00650	0.00558	0.00474	0.00398	0.00332	0.00273
0.3	0.02435	0.02176	0.01926	0.01688	0.01465	0.01259	0.01071	0.00903	0.00753	0.00623
0.4	0.04299	0.03850	0.03414	0.02999	0.02609	0.02247	0.01918	0.01621	0.01357	0.01125
0.5	0.06657	0.05975	0.05313	0.04680	0.04084	0.03530	0.03022	0.02564	0.02154	0.01793
0.6	0.09479	0.08533	0.07611	0.06727	0.05891	0.05112	0.04395	0.03744	0.03160	0.02642
0.7	0.12730	0.11498	0.10293	0.09132	0.08030	0.06998	0.06044	0.05174	0.04389	0.03689
0.8	0.16369	0.14839	0.13337	0.11883	0.10497	0.09192	0.07979	0.06866	0.05857	0.04952
0.9	0.20347	0.18520	0.16718	0.14965	0.13284	0.11693	0.10205	0.08832	0.07578	0.06447
1.0	0.24614	0.22500	0.20404	0.18355	0.16378	0.14495	0.12724	0.11078	0.09565	0.08199
1.1	0.29113	0.26733	0.24361	0.22027	0.19762	0.17591	0.15534	0.13608	0.11825	0.10193
1.2	0.33784	0.31169	0.28545	0.25949	0.23411	0.20962	0.18625	0.16421	0.14364	0.12466
1.3	0.38568	0.35754	0.32913	0.30082	0.27297	0.24588	0.21984	0.19509	0.17181	0.15014
1.4	0.43402	0.40433	0.37414	0.34385	0.31382	0.28441	0.25590	0.22858	0.20267	0.17836
1.5	0.48228	0.45159	0.41997	0.38811	0.35628	0.32486	0.29416	0.26449	0.23610	0.20923
1.6	0.52987	0.49868	0.46608	0.43310	0.39990	0.36684	0.33428	0.30253	0.27190	0.24263
1.7	0.57626	0.54473	0.51196	0.47833	0.44420	0.40993	0.37588	0.34239	0.30978	0.27836
1.8	0.62098	0.58977	0.55710	0.52330	0.48869	0.45365	0.41853	0.38368	0.34944	0.31613
1.9	0.66359	0.63315	0.60102	0.56750	0.53289	0.49754	0.46179	0.42999	0.39050	0.35544
2.0	0.70377	0.67447	0.64329	0.61048	0.57632	0.54111	0.50518	0.46886	0.43252	0.39650
2.1	0.74124	0.71340	0.68353	0.65183	0.61853	0.58389	0.54822	0.51184	0.47508	0.43830
2.2	0.77580	0.74969	0.72144	0.69118	0.65911	0.62545	0.59046	0.55444	0.51770	0.48059
2.3	0.80735	0.78316	0.75675	0.72823	0.69772	0.66539	0.63148	0.59623	0.55994	0.52292
2.4	0.83584	0.81370	0.78932	0.76274	0.73405	0.70337	0.67087	0.63678	0.60134	0.56484
2.5	0.86130	0.84128	0.81902	0.79454	0.76787	0.73909	0.70831	0.67571	0.64148	0.60590
2.6	0.88382	0.86591	0.84584	0.82355	0.79904	0.77234	0.74351	0.71268	0.68000	0.64569
2.7	0.90352	0.88769	0.86979	0.84973	0.81873	0.78245	0.80296	0.77626	0.74742	0.71657
2.8	0.92057	0.90674	0.89096	0.87310	0.85308	0.83086	0.80460	0.77973	0.75092	0.72006
2.9	0.93519	0.92324	0.90947	0.89375	0.87596	0.85602	0.83386	0.80946	0.78284	0.75406
3.0	0.94759	0.93738	0.92550	0.91181	0.88617	0.85847	0.83561	0.80363	0.81220	0.78564
3.1	0.95799	0.94936	0.93923	0.92744	0.91384	0.89830	0.88069	0.86092	0.83893	0.81447
3.2	0.96663	0.95942	0.95086	0.94082	0.92912	0.91562	0.90018	0.88267	0.86299	0.84108
3.3	0.97373	0.96777	0.96063	0.95216	0.94221	0.93061	0.91720	0.90186	0.88445	0.86486
3.4	0.97951	0.97463	0.96874	0.96168	0.95329	0.94343	0.93192	0.91862	0.90337	0.88605
3.5	0.98417	0.98022	0.97540	0.96957	0.96259	0.95429	0.94451	0.93310	0.91989	0.90473
3.6	0.98788	0.98471	0.98082	0.97606	0.97030	0.96340	0.95518	0.94549	0.93416	0.92104
3.7	0.99080	0.98830	0.98518	0.98134	0.97664	0.97095	0.96411	0.95597	0.94636	0.93512
3.8	0.99309	0.99112	0.98865	0.98558	0.98179	0.97715	0.97153	0.96476	0.95669	0.94716
3.9	0.99485	0.99333	0.99139	0.98897	0.98594	0.98220	0.97761	0.97204	0.96534	0.95734
4.0	0.99620	0.99503	0.99353	0.99163	0.98924	0.98625	0.98256	0.97802	0.97251	0.96586
4.1	0.99723	0.99634	0.99519	0.99371	0.99184	0.98948	0.98653	0.98288	0.97839	0.97293
4.2	0.99799	0.99732	0.99645	0.99532	0.99387	0.99203	0.98970	0.98678	0.98317	0.97873
4.3	0.99856	0.99806	0.99741	0.99655	0.99544	0.99401	0.99219	0.98989	0.98701	0.98344
4.4	0.99898	0.99861	0.99812	0.99748	0.99664	0.99554	0.99414	0.99234	0.99007	0.98722
4.5	0.99928	0.99901	0.99865	0.99818	0.99754	0.99672	0.99564	0.99425	0.99247	0.99023
4.6	0.99950	0.99931	0.99904	0.99869	0.99822	0.99760	0.99678	0.99572	0.99435	0.99260
4.7	0.99965	0.99952	0.99933	0.99907	0.99873	0.99826	0.99765	0.99685	0.99580	0.99444
4.8	0.99976	0.99967	0.99953	0.99935	0.99910	0.99876	0.99830	0.99770	0.99690	0.99587
4.9	0.99984	0.99977	0.99968	0.99955	0.99936	0.99912	0.99878	0.99834	0.99774	0.99696
5.0	0.99989	0.99985	0.99978	0.99969	0.99956	0.99938	0.99914	0.99881	0.99837	0.99778
5.1	0.99993	0.99990	0.99985	0.99979	0.99969	0.99957	0.99939	0.99915	0.99883	0.99839
5.2	0.99995	0.99993	0.99990	0.99985	0.99979	0.99970	0.99958	0.99941	0.99917	0.99885
5.3	0.99997	0.99995	0.99993	0.99990	0.99986	0.99980	0.99971	0.99959	0.99942	0.99918
5.4	0.99998	0.99997	0.99996	0.99994	0.99991	0.99986	0.99980	0.99971	0.99959	0.99943
5.5	0.99999	0.99998	0.99997	0.99996	0.99994	0.99991	0.99987	0.99980	0.99972	0.99960
5.6	0.99999	0.99999	0.99998	0.99997	0.99996	0.99994	0.99991	0.99987	0.99981	0.99972
5.7	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99994	0.99991	0.99987	0.99981
5.8	1.00000	1.00000	1.00000	0.99999	0.99999	0.99998	0.99997	0.99996	0.99994	0.99991
5.9	1.00000	1.00000	1.00000	0.99999	0.99999	0.99998	0.99997	0.99996	0.99994	0.99991
6.0	1.00000	1.00000	1.00000	1.00000	0.99999	0.99998	0.99997	0.99996	0.99994	0.99991
6.1	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99998	0.99997	0.99996	0.99995
6.2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99998	0.99997	0.99996
6.3	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99998	0.99997
6.4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999
6.5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Continued

(c)  $\bar{R} = 2.1$  to 3.0

R	P(R) for $\bar{R}$ of -									
	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
0.1	0.00055	0.00045	0.00036	0.00028	0.00022	0.00017	0.00013	0.00010	0.00008	0.00006
0.2	0.00223	0.00180	0.00144	0.00114	0.00090	0.00070	0.00054	0.00041	0.00031	0.00023
0.3	0.00509	0.00413	0.00331	0.00263	0.00207	0.00161	0.00125	0.00095	0.00072	0.00054
0.4	0.00924	0.00751	0.00605	0.00483	0.00381	0.00298	0.00231	0.00171	0.00135	0.00102
0.5	0.01478	0.01208	0.00977	0.00783	0.00622	0.00489	0.00381	0.00294	0.00225	0.00170
0.6	0.02189	0.01797	0.01462	0.01178	0.00940	0.00744	0.00583	0.00452	0.00348	0.00265
0.7	0.03074	0.02538	0.02076	0.01683	0.01352	0.01076	0.00849	0.00663	0.00514	0.00394
0.8	0.04150	0.03447	0.02838	0.02316	0.01873	0.01501	0.01193	0.00939	0.00732	0.00566
0.9	0.05437	0.04546	0.03768	0.03096	0.02522	0.02036	0.01629	0.01292	0.01016	0.00792
1.0	0.06953	0.05854	0.04866	0.04044	0.03318	0.02699	0.02177	0.01740	0.01379	0.01083
1.1	0.08714	0.07888	0.06212	0.05179	0.04282	0.03510	0.02853	0.02299	0.01837	0.01454
1.2	0.10733	0.09166	0.07764	0.06522	0.05434	0.04490	0.03678	0.02988	0.02407	0.01922
1.3	0.13019	0.11199	0.09558	0.08091	0.06794	0.05658	0.04673	0.03827	0.03108	0.02502
1.4	0.15576	0.13499	0.11607	0.09901	0.08379	0.07033	0.05856	0.04835	0.03959	0.03214
1.5	0.18405	0.16067	0.13920	0.11966	0.10205	0.08634	0.07247	0.06033	0.04981	0.04078
1.6	0.21496	0.18904	0.16500	0.14292	0.12285	0.10476	0.08863	0.07439	0.06192	0.05112
1.7	0.24836	0.22000	0.19345	0.16884	0.14625	0.12571	0.10720	0.09070	0.07612	0.06337
1.8	0.28404	0.25342	0.22448	0.19740	0.17229	0.14925	0.12829	0.10941	0.09258	0.07771
1.9	0.32174	0.28909	0.25794	0.22850	0.20095	0.17541	0.15196	0.13064	0.11143	0.09430
2.0	0.36113	0.32674	0.29361	0.26200	0.23213	0.20417	0.17824	0.15444	0.13279	0.11328
2.1	0.40184	0.36604	0.33123	0.29769	0.26568	0.23543	0.20710	0.18083	0.15671	0.13476
2.2	0.44344	0.40662	0.37046	0.33528	0.30139	0.26903	0.23844	0.20979	0.18321	0.15880
2.3	0.48551	0.44807	0.41094	0.37447	0.33897	0.30476	0.27209	0.24120	0.21226	0.18541
2.4	0.52759	0.48995	0.45225	0.41486	0.37812	0.34235	0.30786	0.27491	0.24375	0.21454
2.5	0.56923	0.53181	0.49397	0.45606	0.41844	0.38146	0.34544	0.31070	0.27751	0.24610
2.6	0.61000	0.57321	0.53564	0.49763	0.45954	0.42172	0.38453	0.34830	0.31334	0.27992
2.7	0.64948	0.61371	0.57682	0.53912	0.50098	0.46273	0.42474	0.38736	0.35094	0.31578
2.8	0.68733	0.65292	0.61709	0.58011	0.54232	0.50406	0.46567	0.42753	0.38999	0.35339
2.9	0.72322	0.69048	0.65605	0.62017	0.58314	0.54526	0.50690	0.46839	0.43012	0.39243
3.0	0.75690	0.72608	0.69336	0.65892	0.62301	0.58593	0.54798	0.50593	0.47092	0.43252
3.1	0.78817	0.75948	0.72870	0.69599	0.66155	0.62562	0.58850	0.55050	0.51197	0.44326
3.2	0.81691	0.79048	0.76184	0.73110	0.69841	0.66398	0.62804	0.59089	0.55284	0.51424
3.3	0.84304	0.81895	0.79258	0.76400	0.73331	0.70065	0.66623	0.63028	0.59311	0.55502
3.4	0.86656	0.84483	0.82081	0.79452	0.76600	0.73535	0.70272	0.66832	0.63237	0.59518
3.5	0.88751	0.86811	0.84647	0.82253	0.79630	0.76784	0.73724	0.70465	0.67026	0.63432
3.6	0.90598	0.88884	0.86953	0.84797	0.82411	0.79796	0.76955	0.73900	0.70644	0.67208
3.7	0.92208	0.90711	0.89007	0.87084	0.84936	0.82557	0.79949	0.77115	0.74064	0.70812
3.8	0.93599	0.92304	0.90815	0.89119	0.87205	0.85064	0.82693	0.80091	0.77263	0.74217
3.9	0.94788	0.93679	0.92392	0.90911	0.89223	0.87317	0.85184	0.82820	0.80224	0.77402
4.0	0.95793	0.94854	0.93753	0.92473	0.91000	0.89319	0.87421	0.85295	0.82938	0.80349
4.1	0.96635	0.95847	0.94915	0.93821	0.92548	0.91082	0.89409	0.87517	0.85399	0.83048
4.2	0.97332	0.96679	0.95897	0.94971	0.93883	0.92618	0.91159	0.89493	0.87608	0.85496
4.3	0.97904	0.97367	0.96719	0.95943	0.95023	0.93941	0.92682	0.91230	0.89571	0.87693
4.4	0.98368	0.97932	0.97400	0.96757	0.95986	0.95071	0.93996	0.92743	0.91297	0.89644
4.5	0.98741	0.98390	0.97958	0.97430	0.96791	0.96025	0.95116	0.94046	0.92799	0.91359
4.6	0.99037	0.98758	0.98411	0.97982	0.97458	0.96823	0.96062	0.95158	0.94093	0.92852
4.7	0.99271	0.99051	0.98774	0.98429	0.98004	0.97484	0.96853	0.96097	0.95197	0.94138
4.8	0.99453	0.99281	0.99063	0.98789	0.98447	0.98025	0.97508	0.96881	0.96129	0.95234
4.9	0.99593	0.99461	0.99291	0.99075	0.98803	0.98463	0.98044	0.97530	0.96908	0.96159
5.0	0.99700	0.99599	0.99468	0.99299	0.99085	0.98815	0.98479	0.98062	0.97552	0.96932
5.1	0.99781	0.99705	0.99605	0.99475	0.99308	0.99095	0.98827	0.98493	0.98079	0.97571
5.2	0.99842	0.99785	0.99709	0.99610	0.99481	0.99315	0.99104	0.98838	0.98506	0.98095
5.3	0.99887	0.99844	0.99788	0.99713	0.99614	0.99487	0.99322	0.99113	0.98849	0.98519
5.4	0.99920	0.99889	0.99846	0.99790	0.99716	0.99619	0.99492	0.99329	0.99121	0.98859
5.5	0.99944	0.99921	0.99890	0.99848	0.99793	0.99719	0.99623	0.99497	0.99335	0.99129
5.6	0.99961	0.99944	0.99922	0.99892	0.99850	0.99795	0.99722	0.99626	0.99502	0.99341
5.7	0.99973	0.99961	0.99945	0.99923	0.99893	0.99852	0.99797	0.99725	0.99630	0.99506
5.8	0.99981	0.99973	0.99962	0.99946	0.99924	0.99894	0.99854	0.99800	0.99728	0.99633
5.9	0.99987	0.99982	0.99974	0.99962	0.99947	0.99925	0.99895	0.99855	0.99801	0.99730
6.0	0.99992	0.99988	0.99982	0.99974	0.99963	0.99947	0.99926	0.99894	0.99857	0.99803
6.1	0.99994	0.99992	0.99988	0.99982	0.99974	0.99963	0.99948	0.99927	0.99897	0.99858
6.2	0.99996	0.99995	0.99992	0.99988	0.99983	0.99975	0.99964	0.99948	0.99927	0.99898
6.3	0.99998	0.99996	0.99995	0.99992	0.99988	0.99983	0.99975	0.99964	0.99949	0.99928
6.4	0.99998	0.99998	0.99996	0.99995	0.99992	0.99988	0.99983	0.99975	0.99965	0.99949
6.5	0.99999	0.99998	0.99998	0.99996	0.99995	0.99992	0.99988	0.99983	0.99976	0.99965
6.6	0.99999	0.99999	0.99998	0.99998	0.99997	0.99995	0.99992	0.99989	0.99983	0.99976
6.7	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99995	0.99992	0.99989	0.99983
6.8	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99995	0.99992	0.99989
6.9	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99995	0.99993
7.0	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99998	0.99997	0.99995	0.99995
7.1	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997
7.2	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99998
7.3	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999
7.4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Continued

(d)  $\bar{R} = 3.1$  to  $4.0$ 

R	P(R) for $\bar{R}$ of -									
	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
0.1	0.00004	0.00003	0.00002	0.00002	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000
0.2	0.00017	0.00012	0.00009	0.00006	0.00005	0.00003	0.00002	0.00002	0.00001	0.00001
0.3	0.00040	0.00029	0.00021	0.00015	0.00011	0.00008	0.00005	0.00004	0.00003	0.00002
0.4	0.00076	0.00056	0.00041	0.00030	0.00021	0.00015	0.00011	0.00007	0.00005	0.00003
0.5	0.00127	0.00095	0.00070	0.00051	0.00037	0.00026	0.00019	0.00013	0.00009	0.00006
0.6	0.00200	0.00150	0.00111	0.00081	0.00059	0.00043	0.00030	0.00021	0.00015	0.00010
0.7	0.00300	0.00226	0.00168	0.00125	0.00091	0.00066	0.00048	0.00034	0.00024	0.00017
0.8	0.00434	0.00329	0.00248	0.00185	0.00136	0.00100	0.00072	0.00052	0.00037	0.00026
0.9	0.00611	0.00468	0.00355	0.00267	0.00198	0.00146	0.00107	0.00078	0.00056	0.00040
1.0	0.00843	0.00650	0.00497	0.00377	0.00283	0.00211	0.00155	0.00114	0.00082	0.00059
1.1	0.01142	0.00888	0.00685	0.00524	0.00397	0.00298	0.00222	0.00163	0.00119	0.00086
1.2	0.01521	0.01194	0.00928	0.00716	0.00547	0.00414	0.00311	0.00231	0.00171	0.00125
1.3	0.01997	0.01581	0.01240	0.00965	0.00744	0.00568	0.00430	0.00323	0.00240	0.00177
1.4	0.02588	0.02066	0.01635	0.01282	0.00997	0.00769	0.00587	0.00445	0.00334	0.00248
1.5	0.03311	0.02665	0.02128	0.01684	0.01321	0.01027	0.00792	0.00605	0.00458	0.00344
1.6	0.04186	0.03399	0.02736	0.02184	0.01728	0.01356	0.01055	0.00813	0.00621	0.00470
1.7	0.05232	0.04284	0.03479	0.02801	0.02236	0.01770	0.01388	0.01080	0.00833	0.00636
1.8	0.06470	0.05342	0.04375	0.03553	0.02861	0.02284	0.01808	0.01418	0.01103	0.00851
1.9	0.07916	0.06591	0.05443	0.04458	0.03421	0.02916	0.02328	0.01843	0.01446	0.01125
2.0	0.09588	0.08050	0.06704	0.05537	0.04535	0.03684	0.02947	0.02369	0.01876	0.01472
2.1	0.11498	0.09733	0.08173	0.06807	0.05624	0.04607	0.03743	0.03015	0.02408	0.01937
2.2	0.13658	0.11655	0.09868	0.08288	0.06904	0.05704	0.04574	0.03798	0.03060	0.02444
2.3	0.16073	0.13826	0.11801	0.09993	0.08394	0.06994	0.05780	0.04736	0.03849	0.03101
2.4	0.18744	0.16252	0.13983	0.11937	0.10110	0.08494	0.07078	0.05850	0.04795	0.03971
2.5	0.21666	0.18932	0.16148	0.14129	0.12094	0.10219	0.08587	0.07157	0.05916	0.04850
2.6	0.24829	0.21862	0.19108	0.16574	0.14265	0.12182	0.10321	0.08675	0.07231	0.05978
2.7	0.28216	0.25032	0.22046	0.19272	0.16719	0.14393	0.12294	0.10417	0.08757	0.07301
2.8	0.31805	0.28424	0.25222	0.22217	0.19425	0.16855	0.14513	0.12398	0.10508	0.08834
2.9	0.35567	0.32016	0.28619	0.25399	0.22378	0.19569	0.16483	0.14626	0.12497	0.10593
3.0	0.39470	0.35780	0.32214	0.28801	0.25566	0.22529	0.19704	0.17104	0.14732	0.12590
3.1	0.43476	0.39682	0.35979	0.32399	0.28972	0.25722	0.22670	0.19832	0.17217	0.14832
3.2	0.47546	0.43686	0.39881	0.36166	0.32574	0.29133	0.25870	0.22804	0.19952	0.17325
3.3	0.51636	0.47751	0.43882	0.40067	0.36341	0.32737	0.29285	0.26009	0.22931	0.20066
3.4	0.55705	0.51835	0.47943	0.44066	0.40242	0.36507	0.32892	0.29428	0.26140	0.23050
3.5	0.59711	0.55896	0.52021	0.48123	0.44240	0.40408	0.36662	0.33038	0.29563	0.24264
3.6	0.63614	0.59893	0.56075	0.52196	0.48293	0.44403	0.40543	0.36810	0.33176	0.29691
3.7	0.67377	0.63785	0.60063	0.56243	0.52361	0.48453	0.44557	0.40711	0.36949	0.33306
3.8	0.70969	0.67537	0.63945	0.60223	0.56402	0.52517	0.48605	0.44703	0.40850	0.37081
3.9	0.74361	0.71116	0.67686	0.64096	0.60374	0.56551	0.52664	0.48748	0.44842	0.40982
4.0	0.77532	0.74495	0.71254	0.67827	0.64239	0.60516	0.56693	0.52803	0.48884	0.44973
4.1	0.80465	0.77654	0.74622	0.71385	0.67960	0.64373	0.60651	0.56827	0.52935	0.49012
4.2	0.83152	0.80575	0.77768	0.74741	0.71507	0.68086	0.64500	0.60779	0.56954	0.53060
4.3	0.85587	0.83249	0.80678	0.77877	0.74854	0.71624	0.68205	0.64621	0.60900	0.57074
4.4	0.87772	0.85673	0.83341	0.80775	0.77979	0.74961	0.71734	0.68317	0.64735	0.61015
4.5	0.89712	0.87847	0.85754	0.83428	0.80867	0.78076	0.75061	0.71838	0.68424	0.64844
4.6	0.91418	0.89777	0.87917	0.85830	0.83509	0.80954	0.78176	0.75157	0.71937	0.68526
4.7	0.92901	0.91473	0.89838	0.87984	0.85902	0.83587	0.81036	0.78254	0.75248	0.72032
4.8	0.94179	0.92948	0.91525	0.89895	0.88047	0.85970	0.83660	0.81115	0.78337	0.75335
4.9	0.95269	0.94218	0.92992	0.91574	0.89894	0.88106	0.86035	0.83730	0.81189	0.78415
5.0	0.96188	0.95301	0.94255	0.93034	0.91521	0.90001	0.88163	0.86096	0.83796	0.81259
5.1	0.96955	0.96214	0.95332	0.94290	0.93073	0.91665	0.90050	0.88216	0.86155	0.83859
5.2	0.97590	0.96977	0.96240	0.95361	0.94323	0.93111	0.91706	0.90096	0.88267	0.86210
5.3	0.98110	0.97608	0.96998	0.96264	0.95388	0.94355	0.93146	0.91746	0.90140	0.88316
5.4	0.98530	0.98124	0.97624	0.97017	0.96286	0.95414	0.94385	0.93180	0.91784	0.90182
5.5	0.98868	0.98542	0.98137	0.97640	0.97036	0.96308	0.95439	0.94413	0.93212	0.91820
5.6	0.99136	0.98877	0.98552	0.98149	0.97655	0.97053	0.96328	0.95463	0.94440	0.91242
5.7	0.99346	0.99143	0.98885	0.98562	0.98161	0.97669	0.97070	0.96347	0.95485	0.94465
5.8	0.99510	0.99352	0.99149	0.98893	0.98571	0.98173	0.97682	0.97085	0.96366	0.95606
5.9	0.99636	0.99514	0.99356	0.99155	0.98900	0.98580	0.98183	0.97695	0.97101	0.96383
6.0	0.99732	0.99639	0.99518	0.99361	0.99161	0.98907	0.98589	0.98193	0.97707	0.97115
6.1	0.99805	0.99735	0.99642	0.99521	0.99366	0.99166	0.98914	0.98597	0.98203	0.97119
6.2	0.99859	0.99807	0.99737	0.99645	0.99525	0.99370	0.99171	0.98920	0.98604	0.98212
6.3	0.99899	0.99860	0.99808	0.99739	0.99667	0.99528	0.99374	0.99176	0.98926	0.98612
6.4	0.99929	0.99900	0.99862	0.99810	0.99741	0.99650	0.99531	0.99377	0.99181	0.98912
6.5	0.99950	0.99929	0.99901	0.99883	0.99811	0.99742	0.99652	0.99534	0.99381	0.99185
6.6	0.99965	0.99950	0.99930	0.99902	0.99864	0.99812	0.99744	0.99654	0.99537	0.99384
6.7	0.99976	0.99965	0.99951	0.99930	0.99903	0.99865	0.99814	0.99746	0.99656	0.99539
6.8	0.99984	0.99976	0.99966	0.99951	0.99931	0.99903	0.99866	0.99815	0.99747	0.99658
6.9	0.99989	0.99984	0.99976	0.99966	0.99952	0.99931	0.99904	0.99866	0.99816	0.99749
7.0	0.99993	0.99989	0.99984	0.99977	0.99966	0.99952	0.99932	0.99904	0.99867	0.99817
7.1	0.99995	0.99993	0.99989	0.99984	0.99977	0.99967	0.99952	0.99932	0.99905	0.99868
7.2	0.99997	0.99995	0.99993	0.99989	0.99984	0.99977	0.99967	0.99953	0.99933	0.99906
7.3	0.99998	0.99997	0.99995	0.99993	0.99989	0.99984	0.99977	0.99967	0.99953	0.99933
7.4	0.99999	0.99998	0.99997	0.99995	0.99993	0.99989	0.99984	0.99977	0.99967	0.99953
7.5	0.99999	0.99999	0.99998	0.99997	0.99995	0.99993	0.99989	0.99985	0.99977	0.99967
7.6	0.99999	0.99999	0.99999	0.99998	0.99997	0.99995	0.99993	0.99990	0.99985	0.99978
7.7	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99995	0.99993	0.99990	0.99985
7.8	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99995	0.99993	0.99990
7.9	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99995	0.99993
8.0	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99995

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Continued

(d)  $\bar{R} = 3.1 \text{ to } 4.0$  - Concluded

R	P(R) for $\bar{R}$ of -									
	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
8.1	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997
8.2	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997
8.3	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99999
8.4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Continued

(e)  $\bar{R} = 4.1$  to  $5.0$ 

R	P(R) for $\bar{R}$ of -									
	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
0.1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.3	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.4	0.00002	0.00002	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.5	0.00004	0.00003	0.00002	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000
0.6	0.00007	0.00005	0.00003	0.00002	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000
0.7	0.00012	0.00008	0.00005	0.00004	0.00002	0.00002	0.00001	0.00001	0.00000	0.00000
0.8	0.00018	0.00013	0.00009	0.00006	0.00004	0.00003	0.00002	0.00001	0.00001	0.00000
0.9	0.00028	0.00019	0.00013	0.00009	0.00006	0.00004	0.00003	0.00002	0.00001	0.00001
1.0	0.00042	0.00030	0.00021	0.00014	0.00010	0.00007	0.00004	0.00003	0.00002	0.00001
1.1	0.00062	0.00044	0.00031	0.00022	0.00015	0.00010	0.00007	0.00005	0.00003	0.00002
1.2	0.00090	0.00065	0.00046	0.00032	0.00023	0.00016	0.00011	0.00007	0.00005	0.00003
1.3	0.00129	0.00094	0.00067	0.00048	0.00034	0.00023	0.00016	0.00011	0.00008	0.00006
1.4	0.00183	0.00134	0.00097	0.00069	0.00049	0.00035	0.00024	0.00017	0.00011	0.00008
1.5	0.00256	0.00189	0.00138	0.00100	0.00072	0.00051	0.00036	0.00025	0.00017	0.00012
1.6	0.00353	0.00263	0.00194	0.00141	0.00102	0.00073	0.00052	0.00037	0.00026	0.00018
1.7	0.00482	0.00362	0.00269	0.00198	0.00145	0.00105	0.00075	0.00054	0.00038	0.00026
1.8	0.00650	0.00492	0.00370	0.00275	0.00203	0.00148	0.00107	0.00077	0.00055	0.00039
1.9	0.00868	0.00663	0.00502	0.00377	0.00281	0.00207	0.00151	0.00119	0.00079	0.00056
2.0	0.01146	0.00883	0.00675	0.00512	0.00384	0.00286	0.00211	0.00154	0.00112	0.00080
2.1	0.01497	0.01165	0.00898	0.00687	0.00520	0.00391	0.00291	0.00215	0.00157	0.00114
2.2	0.01935	0.01519	0.01183	0.00912	0.00698	0.00529	0.00397	0.00296	0.00218	0.00159
2.3	0.02478	0.01963	0.01541	0.01199	0.00925	0.00708	0.00536	0.00403	0.00300	0.00221
2.4	0.03141	0.02510	0.01988	0.01561	0.01215	0.00938	0.00717	0.00544	0.00408	0.00304
2.5	0.03943	0.03178	0.02539	0.02012	0.01580	0.01230	0.00949	0.00726	0.00551	0.00414
2.6	0.04902	0.03985	0.03213	0.02568	0.02035	0.01598	0.01245	0.00961	0.00735	0.00557
2.7	0.06037	0.04951	0.04024	0.03246	0.02594	0.02056	0.01615	0.01258	0.00971	0.00743
2.8	0.07367	0.06092	0.04997	0.04064	0.03277	0.02620	0.02076	0.01632	0.01271	0.00981
2.9	0.08907	0.07429	0.06145	0.05040	0.04100	0.03306	0.02644	0.02096	0.01647	0.01293
3.0	0.10674	0.08976	0.07488	0.06194	0.05082	0.04134	0.03335	0.02667	0.02114	0.01662
3.1	0.12677	0.10750	0.09042	0.07543	0.06241	0.05121	0.04167	0.03361	0.02688	0.02132
3.2	0.14927	0.12761	0.10822	0.09104	0.07596	0.06286	0.05159	0.04198	0.03387	0.02709
3.3	0.17426	0.15017	0.12839	0.10890	0.09163	0.07547	0.06329	0.05194	0.04227	0.03411
3.4	0.20174	0.17523	0.15102	0.12914	0.10956	0.09219	0.07694	0.06369	0.05228	0.04255
3.5	0.23163	0.20276	0.17614	0.15183	0.12986	0.11017	0.09272	0.07740	0.06408	0.05260
3.6	0.26382	0.23271	0.20373	0.17701	0.15261	0.13053	0.11077	0.09323	0.07784	0.06445
3.7	0.29813	0.26494	0.23373	0.20466	0.17784	0.15344	0.13118	0.11133	0.09372	0.07826
3.8	0.33430	0.29928	0.26601	0.23470	0.20554	0.17863	0.15404	0.13180	0.11187	0.09419
3.9	0.37207	0.33548	0.30038	0.26702	0.23563	0.20637	0.17938	0.15471	0.13239	0.11238
4.0	0.41108	0.37326	0.33660	0.30142	0.26798	0.23651	0.20717	0.18010	0.15535	0.13295
4.1	0.45097	0.41228	0.37439	0.33767	0.30242	0.26890	0.23735	0.20794	0.18079	0.15536
4.2	0.49135	0.45216	0.41341	0.37547	0.33869	0.30337	0.26978	0.23816	0.20867	0.18144
4.3	0.53179	0.49251	0.45329	0.41450	0.37651	0.33966	0.30428	0.27052	0.23893	0.20937
4.4	0.57189	0.53293	0.49362	0.45436	0.41553	0.37749	0.34059	0.30515	0.27143	0.23967
4.5	0.61125	0.57298	0.53401	0.49468	0.45539	0.41652	0.37843	0.34148	0.30598	0.27220
4.6	0.64947	0.61229	0.57403	0.53504	0.49564	0.45637	0.41746	0.37934	0.34233	0.31678
4.7	0.68623	0.65046	0.61328	0.57502	0.53602	0.49666	0.45731	0.41837	0.38020	0.34315
4.8	0.72121	0.68715	0.65140	0.61423	0.57597	0.53696	0.49758	0.45821	0.41924	0.38103
4.9	0.75417	0.72207	0.68803	0.65230	0.61514	0.57688	0.53786	0.49847	0.45907	0.42007
5.0	0.78490	0.75495	0.72288	0.68887	0.65315	0.61601	0.57775	0.53873	0.49932	0.45990
5.1	0.81327	0.78561	0.75570	0.72366	0.68968	0.65397	0.61684	0.57858	0.53955	0.50013
5.2	0.83919	0.81391	0.78630	0.75642	0.72441	0.69045	0.65476	0.61763	0.57938	0.54035
5.3	0.86263	0.83976	0.81452	0.78695	0.75710	0.72512	0.69118	0.65551	0.61840	0.58015
5.4	0.88362	0.86314	0.84031	0.81511	0.78757	0.75776	0.72581	0.69189	0.65624	0.61913
5.5	0.90222	0.88406	0.86362	0.84083	0.81567	0.78817	0.75839	0.72666	0.69257	0.65693
5.6	0.91854	0.90260	0.88448	0.86408	0.84133	0.81621	0.78874	0.75899	0.72709	0.69322
5.7	0.93271	0.91887	0.90297	0.88489	0.86452	0.84181	0.81672	0.78929	0.75957	0.72770
5.8	0.94490	0.93299	0.91918	0.90332	0.88527	0.86495	0.84227	0.81722	0.78981	0.76012
5.9	0.95527	0.94513	0.93326	0.91948	0.90365	0.88565	0.86535	0.84271	0.81769	0.79032
6.0	0.96400	0.95546	0.94536	0.93351	0.91977	0.90398	0.88600	0.86574	0.84313	0.81815
6.1	0.97129	0.96416	0.95565	0.94557	0.93376	0.92004	0.90428	0.88634	0.86612	0.84354
6.2	0.97730	0.97142	0.96431	0.95583	0.94577	0.93399	0.92031	0.90458	0.88667	0.86468
6.3	0.98221	0.97740	0.97154	0.96446	0.95600	0.94597	0.93421	0.92056	0.90486	0.88698
6.4	0.98619	0.98230	0.97751	0.97166	0.96460	0.95616	0.94616	0.93443	0.92081	0.90514
6.5	0.98937	0.98626	0.98238	0.97760	0.97178	0.96474	0.95632	0.94634	0.93464	0.92104
6.6	0.99190	0.98942	0.98632	0.98246	0.97769	0.97189	0.96487	0.95647	0.94651	0.93484
6.7	0.99388	0.99194	0.98947	0.98638	0.98253	0.97778	0.97199	0.96499	0.95661	0.94668
6.8	0.99542	0.99391	0.99198	0.98952	0.98644	0.98260	0.97787	0.97209	0.96511	0.95675
6.9	0.99660	0.99544	0.99394	0.99201	0.98957	0.98650	0.98267	0.97795	0.97219	0.96523
7.0	0.99750	0.99662	0.99546	0.99397	0.99205	0.98961	0.98655	0.98274	0.97803	0.97228
7.1	0.99818	0.99751	0.99664	0.99549	0.99399	0.99208	0.98966	0.98660	0.98280	0.97811
7.2	0.99869	0.99819	0.99753	0.99665	0.99591	0.99402	0.99212	0.98970	0.98665	0.98286
7.3	0.99906	0.99870	0.99820	0.99754	0.99667	0.99553	0.99405	0.99215	0.98974	0.98670
7.4	0.99934	0.99907	0.99870	0.99821	0.99755	0.99668	0.99555	0.99407	0.99218	0.98977
7.5	0.99953	0.99934	0.99907	0.99871	0.99822	0.99756	0.99670	0.99556	0.99409	0.99221
7.6	0.99968	0.99954	0.99934	0.99908	0.99872	0.99823	0.99757	0.99671	0.99558	0.99412
7.7	0.99978	0.99968	0.99954	0.99935	0.99908	0.99872	0.99823	0.99758	0.99673	0.99560
7.8	0.99985	0.99978	0.99968	0.99954	0.99935	0.99909	0.99873	0.99824	0.99759	0.99674
7.9	0.99990	0.99985	0.99978	0.99968	0.99954	0.99935	0.99909	0.99873	0.99825	0.99760
8.0	0.99993	0.99990	0.99985	0.99978	0.99968	0.99955	0.99936	0.99909	0.99874	0.99786

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Continued

(e)  $\bar{R} = 4.1$  to  $5.0$  - Concluded

R	P(R) for R of -									
	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
8.1	0.99995	0.99993	0.99990	0.99985	0.99978	0.99969	0.99955	0.99936	0.99910	0.99874
8.2	0.99997	0.99995	0.99993	0.99990	0.99985	0.99978	0.99969	0.99955	0.99936	0.99910
8.3	0.99998	0.99997	0.99995	0.99993	0.99990	0.99985	0.99978	0.99969	0.99955	0.99937
8.4	0.99999	0.99998	0.99997	0.99996	0.99993	0.99990	0.99985	0.99979	0.99969	0.99956
8.5	0.99999	0.99999	0.99998	0.99997	0.99996	0.99993	0.99990	0.99985	0.99979	0.99969
8.6	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99993	0.99990	0.99985	0.99979
8.7	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99993	0.99990	0.99986
8.8	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99993	0.99990
8.9	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99993
9.0	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996
9.1	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997
9.2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998
9.3	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999
9.4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Continued

(f) R = 5.1 to 6.0

R	P(R) for $\bar{R}$ of -									
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
0.1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.3	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.4	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.5	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.6	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.7	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.8	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.9	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1.0	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1.1	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1.2	0.00002	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1.3	0.00003	0.00002	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1.4	0.00005	0.00003	0.00002	0.00002	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000
1.5	0.00008	0.00005	0.00004	0.00002	0.00002	0.00001	0.00001	0.00000	0.00000	0.00000
1.6	0.00012	0.00008	0.00006	0.00004	0.00002	0.00002	0.00001	0.00001	0.00000	0.00000
1.7	0.00018	0.00012	0.00008	0.00006	0.00004	0.00002	0.00002	0.00002	0.00001	0.00001
1.8	0.00027	0.00019	0.00013	0.00009	0.00006	0.00004	0.00003	0.00002	0.00001	0.00001
1.9	0.00039	0.00027	0.00019	0.00013	0.00009	0.00006	0.00004	0.00003	0.00002	0.00001
2.0	0.00057	0.00040	0.00028	0.00019	0.00013	0.00009	0.00006	0.00004	0.00003	0.00002
2.1	0.00081	0.00058	0.00041	0.00028	0.00020	0.00014	0.00009	0.00006	0.00004	0.00003
2.2	0.00115	0.00083	0.00059	0.00042	0.00029	0.00020	0.00014	0.00009	0.00006	0.00004
2.3	0.00162	0.00117	0.00084	0.00060	0.00042	0.00029	0.00020	0.00014	0.00009	0.00006
2.4	0.00224	0.00164	0.00119	0.00085	0.00061	0.00043	0.00030	0.00021	0.00014	0.00010
2.5	0.00308	0.00227	0.00166	0.00120	0.00086	0.00062	0.00043	0.00030	0.00021	0.00014
2.6	0.00419	0.00312	0.00230	0.00168	0.00122	0.00088	0.00042	0.00044	0.00031	0.00021
2.7	0.00563	0.00423	0.00315	0.00233	0.00170	0.00123	0.00089	0.00063	0.00044	0.00031
2.8	0.00751	0.00569	0.00428	0.00319	0.00235	0.00172	0.00125	0.00090	0.00064	0.00046
2.9	0.00991	0.00758	0.00575	0.00432	0.00322	0.00238	0.00174	0.00126	0.00091	0.00064
3.0	0.01295	0.01000	0.00765	0.00580	0.00436	0.00325	0.00240	0.00176	0.00127	0.00091
3.1	0.01676	0.01306	0.01008	0.00772	0.00586	0.00440	0.00328	0.00242	0.00177	0.00128
3.2	0.02148	0.01689	0.01316	0.01017	0.00778	0.00590	0.00444	0.00331	0.00244	0.00179
3.3	0.02729	0.02164	0.01702	0.01326	0.01024	0.00784	0.00595	0.00448	0.00334	0.00246
3.4	0.03434	0.02748	0.02180	0.01714	0.01336	0.01032	0.00790	0.00600	0.00451	0.00336
3.5	0.04282	0.03456	0.02766	0.02194	0.01726	0.01345	0.01039	0.00796	0.00604	0.00454
3.6	0.05291	0.04308	0.03478	0.02783	0.02208	0.01737	0.01354	0.01046	0.00801	0.00608
3.7	0.06480	0.05321	0.04333	0.03498	0.02800	0.02222	0.01747	0.01362	0.01053	0.00807
3.8	0.07865	0.06514	0.05349	0.04356	0.03517	0.02816	0.02234	0.01758	0.01371	0.01059
3.9	0.09463	0.07903	0.06546	0.05377	0.04379	0.03536	0.02831	0.02247	0.01768	0.01379
4.0	0.11287	0.09506	0.07940	0.06577	0.05403	0.04401	0.03554	0.02845	0.02259	0.01777
4.1	0.13349	0.11335	0.09546	0.07975	0.06607	0.05428	0.04421	0.03571	0.02860	0.02270
4.2	0.15655	0.13401	0.11380	0.09586	0.08008	0.06635	0.05452	0.04442	0.03588	0.02873
4.3	0.18207	0.15711	0.13450	0.11423	0.09623	0.08041	0.06663	0.05475	0.0461	0.03604
4.4	0.21004	0.18268	0.15765	0.13498	0.11465	0.09660	0.08072	0.06689	0.05497	0.04779
4.5	0.24038	0.21069	0.18326	0.15817	0.13544	0.11505	0.09694	0.08102	0.06715	0.05519
4.6	0.27294	0.24106	0.21131	0.18382	0.15867	0.13588	0.11544	0.09728	0.08131	0.06719
4.7	0.30754	0.27365	0.24171	0.21190	0.18435	0.15914	0.13630	0.11581	0.09760	0.08158
4.8	0.34393	0.30828	0.27433	0.24234	0.21247	0.18487	0.15961	0.13671	0.11617	0.09791
4.9	0.38182	0.34469	0.30898	0.27499	0.24294	0.21302	0.18537	0.16005	0.13711	0.11651
5.0	0.42087	0.38259	0.34541	0.30966	0.27562	0.24352	0.21355	0.18584	0.16048	0.13749
5.1	0.46070	0.42163	0.38332	0.34611	0.31031	0.27623	0.24408	0.21406	0.18631	0.16089
5.2	0.50091	0.46146	0.42237	0.38403	0.34677	0.31094	0.27681	0.24462	0.21455	0.18675
5.3	0.54111	0.50166	0.46219	0.42308	0.38471	0.34742	0.31155	0.27738	0.24514	0.21503
5.4	0.58088	0.54184	0.50239	0.46290	0.42376	0.38536	0.34804	0.31213	0.27792	0.24564
5.5	0.61984	0.58159	0.54255	0.50308	0.46358	0.42442	0.38599	0.34864	0.31270	0.27845
5.6	0.65760	0.62051	0.58227	0.54323	0.50375	0.46424	0.42506	0.38660	0.34922	0.31324
5.7	0.69384	0.65824	0.62117	0.58293	0.54388	0.50440	0.46487	0.42567	0.38719	0.34978
5.8	0.72828	0.69445	0.65886	0.62179	0.58356	0.54551	0.50502	0.46548	0.42626	0.38776
5.9	0.76066	0.72884	0.69503	0.65946	0.62240	0.58417	0.55152	0.50563	0.46607	0.42683
6.0	0.79081	0.76117	0.72938	0.69559	0.66003	0.62298	0.58476	0.54571	0.50621	0.46664
6.1	0.81859	0.79127	0.76167	0.72989	0.69612	0.66058	0.62355	0.5833	0.54628	0.50577
6.2	0.84393	0.81901	0.79173	0.76215	0.73039	0.69664	0.66112	0.62409	0.58588	0.54683
6.3	0.86682	0.84431	0.81942	0.79216	0.76261	0.73088	0.69715	0.66163	0.62462	0.58641
6.4	0.88729	0.86716	0.84467	0.81981	0.79258	0.76305	0.73134	0.69763	0.66213	0.62513
6.5	0.90540	0.88758	0.86748	0.84503	0.82019	0.79299	0.76348	0.73179	0.69810	0.66262
6.6	0.92127	0.90545	0.88786	0.86779	0.84536	0.82055	0.79338	0.76390	0.73223	0.69855
6.7	0.93503	0.92148	0.90590	0.88813	0.86809	0.84569	0.82091	0.79375	0.76430	0.73265
6.8	0.94684	0.93521	0.92169	0.90613	0.88839	0.86838	0.84600	0.82125	0.79412	0.76448
6.9	0.95689	0.94700	0.93539	0.92189	0.90636	0.88865	0.86866	0.84631	0.82158	0.79447
7.0	0.96534	0.95702	0.94715	0.93556	0.92029	0.90658	0.88889	0.84660	0.82190	0.79440
7.1	0.97238	0.96544	0.95714	0.94729	0.93573	0.92228	0.90679	0.88913	0.86919	0.84689
7.2	0.97818	0.97246	0.96555	0.95726	0.94743	0.93589	0.92246	0.90699	0.88936	0.86944
7.3	0.98292	0.97825	0.97255	0.96565	0.95738	0.94757	0.93604	0.92264	0.90719	0.88958
7.4	0.98675	0.98297	0.97832	0.97263	0.96574	0.95749	0.94770	0.93619	0.92281	0.90738
7.5	0.98981	0.98679	0.98303	0.97838	0.97271	0.96583	0.95760	0.94782	0.93634	0.92297
7.6	0.99224	0.98985	0.98684	0.98308	0.97845	0.97278	0.96592	0.95770	0.94795	0.93648
7.7	0.99414	0.99226	0.98988	0.98688	0.98313	0.97851	0.97285	0.96601	0.95781	0.94806
7.8	0.99562	0.99416	0.99229	0.98991	0.98692	0.98318	0.97857	0.97293	0.96610	0.95790
7.9	0.99675	0.99563	0.99418	0.99232	0.98994	0.98696	0.98323	0.97863	0.97300	0.96618
8.0	0.99761	0.99676	0.99565	0.99420	0.99234	0.98997	0.98699	0.98328	0.97868	0.97304

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Continued

(f)  $\bar{R} = 5.1$  to  $6.0$  - Concluded

R	P(R) for $\bar{R}$ of -									
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
8.1	0.99826	0.99762	0.99677	0.99566	0.99422	0.99236	0.99000	0.98703	0.98332	0.97874
8.2	0.99875	0.99827	0.99763	0.99679	0.99568	0.99424	0.99239	0.99003	0.98707	0.98336
8.3	0.99911	0.99875	0.99828	0.99764	0.99680	0.99569	0.99426	0.99241	0.99006	0.98710
8.4	0.99937	0.99911	0.99876	0.99828	0.99765	0.99681	0.99570	0.99427	0.99243	0.99009
8.5	0.99956	0.99937	0.99911	0.99876	0.99829	0.99766	0.99682	0.99572	0.99429	0.99245
8.6	0.99969	0.99956	0.99937	0.99912	0.99877	0.99830	0.99766	0.99683	0.99573	0.99431
8.7	0.99979	0.99969	0.99956	0.99938	0.99912	0.99877	0.99830	0.99767	0.99684	0.99574
8.8	0.99986	0.99979	0.99969	0.99956	0.99938	0.99912	0.99878	0.99831	0.99768	0.99685
8.9	0.99990	0.99986	0.99979	0.99970	0.99956	0.99938	0.99913	0.99878	0.99831	0.99769
9.0	0.99993	0.99990	0.99986	0.99979	0.99970	0.99957	0.99938	0.99913	0.99878	0.99812
9.1	0.99996	0.99993	0.99990	0.99986	0.99979	0.99970	0.99957	0.99938	0.99913	0.99879
9.2	0.99997	0.99996	0.99994	0.99990	0.99986	0.99979	0.99970	0.99957	0.99939	0.99913
9.3	0.99998	0.99997	0.99996	0.99994	0.99990	0.99986	0.99979	0.99970	0.99957	0.99939
9.4	0.99999	0.99998	0.99997	0.99996	0.99994	0.99990	0.99986	0.99979	0.99970	0.99957
9.5	0.99999	0.99999	0.99998	0.99997	0.99996	0.99994	0.99990	0.99986	0.99979	0.99970
9.6	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99994	0.99991	0.99986	0.99980
9.7	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99994	0.99991	0.99986
9.8	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99994	0.99991
9.9	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996	0.99994
10.0	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997	0.99996
10.1	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998	0.99997
10.2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999	0.99998
10.3	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999
10.4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Continued

(g)  $\bar{R} = 6.0$  to  $15.0$ 

R	P(R) for $\bar{R}$ of -									
	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
0.5	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.	0.
1.0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.
1.5	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.
2.0	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2.5	0.00014	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3.0	0.00091	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3.5	0.00454	0.00016	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4.0	0.01777	0.00099	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4.5	0.05519	0.00481	0.00017	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5.0	0.13749	0.01856	0.00104	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5.5	0.27845	0.05697	0.00501	0.00018	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6.0	0.46664	0.14065	0.01912	0.00108	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000
6.5	0.66262	0.28285	0.05827	0.00515	0.00015	0.00000	0.00000	0.00000	0.00000	0.00000
7.0	0.82190	0.47143	0.14299	0.01956	0.00111	0.0002	0.00000	0.00000	0.00000	0.00000
7.5	0.92297	0.66649	0.28613	0.05927	0.00527	0.00019	0.00000	0.00000	0.00000	0.00000
8.0	0.97306	0.82460	0.47502	0.14479	0.01990	0.00113	0.00003	0.00000	0.00000	0.00000
8.5	0.99245	0.92437	0.66975	0.28867	0.04006	0.00535	0.00019	0.00000	0.00000	0.00000
9.0	0.99832	0.97363	0.82664	0.47780	0.14622	0.02017	0.00115	0.00003	0.00000	0.00000
9.5	0.99970	0.99263	0.92543	0.67214	0.29068	0.04070	0.00544	0.00020	0.00000	0.00000
10.0	0.99996	0.99836	0.97406	0.82824	0.48003	0.14738	0.02040	0.00117	0.00003	0.00000
10.5	0.99999	0.99971	0.99277	0.92626	0.67405	0.29233	0.06123	0.00500	0.00020	0.00000
11.0	1.00000	0.99996	0.99839	0.97440	0.82952	0.48185	0.14834	0.02058	0.00118	0.00003
11.5	1.00000	0.99999	0.99972	0.99287	0.92694	0.67562	0.29370	0.06167	0.00555	0.00020
12.0	1.00000	1.00000	0.99996	0.99842	0.97467	0.83057	0.48336	0.14915	0.02075	0.00119
12.5	1.00000	1.00000	1.00000	0.99972	0.99296	0.92749	0.67693	0.29485	0.06205	0.00560
13.0	1.00000	1.00000	1.00000	0.99996	0.99844	0.97489	0.83145	0.48464	0.14985	0.02088
13.5	1.00000	1.00000	1.00000	0.99999	0.99973	0.99303	0.92795	0.67804	0.29584	0.06237
14.0	1.00000	1.00000	1.00000	1.00000	0.99996	0.99846	0.97508	0.83220	0.48574	0.15045
14.5	1.00000	1.00000	1.00000	1.00000	0.99999	0.99973	0.99309	0.92834	0.67899	0.29670
15.0	1.00000	1.00000	1.00000	1.00000	1.00000	0.99996	0.99847	0.97524	0.83285	0.48659
15.5	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99973	0.99314	0.92868	0.67982
16.0	1.00000	1.00000	1.00000	1.00000	1.00000	0.99996	0.99849	0.97538	0.83340	
16.5	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99973	0.99319	0.92897	
17.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99996	0.99850	0.97550	
17.5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99974	0.99323	
18.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99996	0.99851
18.5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99974
19.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99996
19.5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999

TABLE I. - PROBABILITY P(R) THAT MAGNITUDE OF RADIUS VECTOR IS EQUAL TO OR LESS THAN R - Concluded

(h)  $\bar{R} = 16.0 \text{ to } 25.0$ 

R	P(R) for R of -									
	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0
10.5	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.	0.
11.0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.
11.5	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.
12.0	0.00003	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
12.5	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
13.0	0.00120	0.00003	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
13.5	0.00564	0.00021	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
14.0	0.02101	0.00121	0.00003	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
14.5	0.06266	0.00567	0.00021	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
15.0	0.15097	0.02111	0.00122	0.00003	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
15.5	0.29744	0.06291	0.00570	0.00021	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
16.0	0.48753	0.15143	0.02121	0.00123	0.00003	0.00000	0.00000	0.00000	0.00000	0.00000
16.5	0.68054	0.29810	0.06313	0.00573	0.00021	0.00000	0.00000	0.00000	0.00000	0.00000
17.0	0.83389	0.48826	0.15183	0.02129	0.00123	0.00003	0.00000	0.00000	0.00000	0.00000
17.5	0.92923	0.68118	0.29868	0.06333	0.00576	0.00021	0.00000	0.00000	0.00000	0.00000
18.0	0.97561	0.83432	0.48891	0.15220	0.02136	0.00124	0.00003	0.00000	0.00000	0.00000
18.5	0.99326	0.92946	0.68174	0.29921	0.06350	0.00578	0.00021	0.00000	0.00000	0.00000
19.0	0.99852	0.97570	0.83471	0.48950	0.15253	0.02143	0.00125	0.00003	0.00000	0.00000
19.5	0.99974	0.99329	0.92966	0.68225	0.29968	0.06367	0.00580	0.00021	0.00000	0.00000
20.0	0.99996	0.99852	0.97579	0.83505	0.49002	0.15282	0.02149	0.00125	0.00003	0.00000
20.5	0.99999	0.99974	0.99332	0.92984	0.68271	0.30010	0.06381	0.00582	0.00021	0.00000
21.0	1.00000	0.99996	0.99853	0.97586	0.83536	0.49050	0.15309	0.02155	0.00125	0.00003
21.5	1.00000	0.99999	0.99974	0.99334	0.93001	0.68312	0.30049	0.06394	0.00583	0.00021
22.0	1.00000	1.00000	0.99996	0.99853	0.97593	0.83565	0.49093	0.15333	0.02160	0.00126
22.5	1.00000	1.00000	0.99999	0.99974	0.99336	0.93016	0.68350	0.30084	0.06406	0.00585
23.0	1.00000	1.00000	1.00000	0.99996	0.99854	0.97599	0.83590	0.49132	0.15356	0.02165
23.5	1.00000	1.00000	1.00000	0.99999	0.99974	0.99338	0.93029	0.68384	0.30116	0.04418
24.0	1.00000	1.00000	1.00000	1.00000	0.99996	0.99854	0.97604	0.83613	0.49168	0.15376
24.5	1.00000	1.00000	1.00000	1.00000	0.99999	0.99974	0.99340	0.93042	0.68416	0.30146
25.0	1.00000	1.00000	1.00000	1.00000	1.00000	0.99996	0.99855	0.97609	0.83635	0.49202
25.5	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99974	0.99341	0.93053	0.68445
26.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99996	0.99855	0.97614	0.83656
26.5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99974	0.99343	0.93054
27.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99996	0.99856	0.97619
27.5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99974	0.99344
28.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99996	0.99856
28.5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99975
29.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99996
29.5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99999

TABLE II

Values for the Probability Integral

$$P(\Phi) = \frac{1}{2\pi} \int_0^\Phi \int_0^\infty \exp\left[-\frac{1}{2}(R^2 + \bar{R}^2 - 2R\bar{R} \cos \Phi)\right] R dR d\Phi$$

for  $\bar{R} = 0.1$  to  $\bar{R} = 6.0$  in intervals of 0.1

$\Phi = 2.5^\circ$  to  $\Phi = 360^\circ$  in intervals of  $2.5^\circ$

and  $\bar{R} = 6.0$  to  $\bar{R} = 25.0$  in intervals of 1.0

$\Phi = 2.5^\circ$  to  $\Phi = 360^\circ$  in intervals of  $2.5^\circ$

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\bar{\theta}$  AND  $\Phi$ (a)  $\bar{R} = 0.1$  to 1.0

$\Phi$ , deg	$P(\Phi)$ for $\bar{R}$ of -									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
2.5	0.00785	C.00882	0.00986	C.01097	C.01214	C.01338	C.01467	0.01601	0.01741	0.01885
5.0	0.01570	C.01764	C.01974	C.02193	C.02427	C.02673	C.02930	0.03198	0.03476	0.03763
7.5	0.02354	C.02645	C.02956	C.03287	C.03636	C.04004	C.04388	C.04787	C.05201	0.05629
10.0	0.03138	C.03525	C.03938	C.04377	C.04840	C.05327	C.05836	0.06365	0.06912	0.07476
12.5	0.03921	C.04402	C.04917	C.05462	C.06028	C.06642	C.07272	0.07926	0.08602	0.09298
15.0	0.04703	C.05278	C.05891	C.06542	C.07227	C.07945	C.08693	0.09468	0.10265	0.11090
17.5	0.05484	C.06151	C.06862	C.07614	C.08466	C.09234	C.10096	0.10988	0.11906	0.12848
20.0	0.06263	C.0721	C.07827	C.08679	C.09574	C.10508	C.11479	0.12481	0.13512	0.14565
22.5	0.07041	C.07887	0.08766	C.09734	0.10728	C.11765	C.12839	0.13946	0.15081	0.16238
25.0	0.07818	0.08750	C.09738	0.10779	0.11869	C.13003	C.14175	0.15380	0.16612	0.17864
27.5	C.08592	C.09608	C.10683	C.11814	0.12955	0.14220	C.15484	0.16780	0.18101	0.19439
30.0	C.09365	C.10462	0.11621	0.12837	0.14104	C.15416	C.16765	0.18144	0.19545	0.20981
32.5	0.10135	C.11311	0.12550	C.13847	0.15155	C.16588	C.18016	C.19471	0.20944	0.22428
35.0	0.10903	C.12154	0.13470	C.14844	C.16269	C.17735	C.19235	0.20759	0.22296	0.23838
37.5	0.11669	C.12592	C.14381	C.15827	0.17323	C.18858	C.20422	0.22026	0.23599	0.25190
40.0	0.12432	C.13824	C.15282	C.16796	C.18357	C.19954	C.21577	0.23214	0.24853	0.26484
42.5	0.13192	C.14650	C.16173	C.17749	C.19370	C.21023	C.22697	0.24379	0.26058	0.27720
45.0	C.13549	C.15470	C.17053	C.18688	C.20363	C.22066	C.23784	C.25504	0.27213	0.28899
47.5	0.14703	C.16283	C.17922	C.19610	C.21334	C.23080	C.24834	C.26587	C.28319	0.30221
50.0	0.15455	C.1789	C.18780	C.20516	C.22283	C.2467	C.25583	C.2728	C.29377	C.31C87
52.5	0.16203	C.17888	0.19627	C.21405	C.23210	C.2526	C.26837	C.28629	C.30387	C.32098
55.0	0.16947	C.18680	0.20461	C.22279	C.24115	C.25557	C.27786	C.29589	C.31350	C.33C57
57.5	0.17689	C.19444	0.21285	C.23135	C.24959	C.26860	C.28702	C.30510	C.32265	C.33965
60.0	0.18426	C.20241	C.22096	C.23974	C.25860	C.27735	C.29585	C.31352	C.33143	C.34823
62.5	0.19161	C.21211	C.22895	C.24797	C.26699	C.28584	C.30435	C.32327	C.33574	C.35435
65.0	0.19891	C.21772	C.23682	C.25602	C.27516	C.29406	C.31254	C.33045	C.34765	C.36402
67.5	0.20618	C.22526	C.24457	C.26391	C.28312	C.30201	C.32041	C.33818	C.35517	C.37126
70.0	0.21342	C.23273	C.25220	C.27164	C.29087	C.30971	C.32799	C.34557	C.36231	C.378C9
72.5	0.22061	C.24011	0.25970	C.27920	C.29841	C.31716	C.33528	C.35263	C.36909	C.38454
75.0	0.22777	C.24742	C.26709	C.28655	C.30574	C.32436	C.34229	C.35938	C.37553	C.39063
77.5	0.23489	C.25465	C.27436	C.29383	C.31288	C.33133	C.34903	C.36584	C.38165	C.39638
80.0	0.24197	C.26180	C.28151	C.30091	C.31982	C.33806	C.35550	C.37200	C.38746	C.40180
82.5	0.24901	C.26887	C.28854	C.30783	C.32657	C.34458	C.36173	C.37789	C.39298	C.40692
85.0	0.25662	C.27587	C.29546	C.31466	C.33313	C.35C88	C.36772	C.38353	C.39823	C.41177
87.5	0.26299	C.28279	0.30226	C.32123	C.33952	C.35698	C.37348	C.38892	C.40322	C.41634
90.0	0.26991	C.28963	C.30896	C.32771	C.34573	C.36287	C.37902	C.394C7	C.40797	C.42067
92.5	0.27680	C.29640	C.31554	C.33405	C.35178	C.36858	C.38435	C.399C1	C.41249	C.42477
95.0	0.28366	C.30310	C.32222	C.3426	C.35766	C.3741C	C.38949	C.40373	C.41680	C.42866
97.5	0.294C7	C.30972	0.32839	C.34633	C.36339	C.37945	C.39443	C.40826	C.42090	C.43234
100.0	0.29725	C.31627	C.33467	C.35227	C.36857	C.38464	C.39920	C.41260	C.42482	C.43584
102.5	0.30400	C.32276	C.34084	0.35809	C.37440	C.38966	C.40380	C.41677	C.42856	C.43916
105.0	0.31C71	C.32917	C.34692	C.36380	C.37970	C.39453	C.40824	C.42078	C.43214	C.44233
107.5	0.31738	C.33553	C.35290	C.36938	C.38486	C.39926	C.41253	C.42463	C.43556	C.44534
110.0	0.32402	C.34181	C.35880	C.37486	C.38990	C.40385	C.41667	C.42833	C.43884	C.44822
112.5	0.33062	C.34803	C.36460	C.38023	C.39482	C.40831	C.42668	C.43190	C.44199	C.45097
115.0	0.33719	C.35420	C.37033	C.38550	C.39962	C.41265	C.42456	C.43534	C.44501	C.45360
117.5	0.34373	C.36030	C.37597	C.39066	C.40431	C.41687	C.42832	C.43866	C.44791	C.45611
120.0	0.35C24	C.36634	C.38154	C.39574	C.40890	C.42C98	C.43197	C.44187	C.45071	C.45853
122.5	0.35672	C.37233	0.38703	C.40073	C.41339	C.42499	C.43551	C.44497	C.4534C	C.46085
125.0	0.36317	C.37827	C.39245	C.40563	C.41779	C.42889	C.43895	C.44798	C.45601	C.46308
127.5	0.36959	C.38416	C.39780	C.41045	C.42209	C.43271	C.44230	C.45090	C.45852	C.46523
130.0	0.37595	C.35000	0.40308	C.41520	C.42632	C.43644	C.44557	C.45373	C.46096	C.46731
132.5	0.38235	C.35579	C.40831	C.41987	C.43047	C.44009	C.44875	C.45648	C.46332	C.46932
135.0	0.3887C	C.4C153	C.41347	C.42448	C.43454	C.44366	C.45185	C.45916	C.46561	C.47126
137.5	0.39591	C.4C724	C.41858	C.42902	C.43854	C.44716	C.45489	C.46177	C.46784	C.47315
140.0	C.40131	C.41290	C.42364	C.43350	C.44248	C.45059	C.45786	C.46432	C.47001	C.47498
142.5	C.4075E	C.41853	C.42865	C.43792	C.44635	C.45396	C.46077	C.46681	C.47212	C.47676
145.0	0.41384	C.42412	C.43361	C.44229	C.45018	C.45728	C.46362	C.46925	C.47419	C.47850
147.5	0.42007	C.42968	C.43853	C.44661	C.45395	C.46054	C.46643	C.47164	C.47621	C.48019
150.0	0.42629	C.43521	C.44341	C.45085	C.45767	C.46376	C.46918	C.47398	C.47819	C.48185
152.5	0.43249	C.44071	C.44825	C.45513	C.46135	C.46693	C.47190	C.47629	C.48013	C.48348
155.0	0.4386E	C.44618	C.45306	C.45933	C.46498	C.47006	C.47457	C.47855	C.48204	C.48507
157.5	0.44485	C.45163	C.45784	C.46349	C.46859	C.47315	C.47721	C.48079	C.48392	C.48664
160.0	0.45101	C.45706	C.46259	C.46762	C.47216	C.47621	C.47982	C.48300	C.48577	C.48818
162.5	0.45716	C.46247	C.46732	C.47173	C.47570	C.47925	C.48240	C.48518	C.48760	C.48970
165.0	0.4633C	C.46786	C.47203	C.47581	C.47922	C.48226	C.48496	C.48733	C.48941	C.49121
167.5	0.46943	C.47324	C.47672	C.47987	C.48271	C.48525	C.48750	C.48947	C.49120	C.49270
170.0	0.47555	C.47861	C.48139	C.48392	C.48619	C.48822	C.4902	C.49160	C.49298	C.49417
172.5	0.48167	C.48396	C.48606	C.48795	C.48965	C.49118	C.49252	C.49371	C.49474	C.49564
175.0	0.4877E	C.48931	C.49071	C.49197	C.49311	C.49412	C.49502	C.49581	C.49650	C.49710
177.5	0.49385	C.49466	C.49536	C.49599	C.49656	C.49706	C.49751	C.49791	C.49825	C.49855
180.0	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\theta$  AND  $\Phi$  - Continued(a)  $\bar{R} = 0.1$  to 1.0 - Concluded

$\Phi$ , deg	P( $\Phi$ ) for $\bar{R}$ of -									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
182.5	0.50611	0.50534	0.50464	0.50401	0.50344	C.50294	C.50249	0.50209	0.50175	0.50145
185.0	0.51222	0.51169	0.50929	0.50803	0.50689	C.50588	C.50498	0.50419	0.50350	0.50290
187.5	0.51833	0.51604	0.51394	0.51205	0.51034	C.50882	C.50748	0.50629	0.50526	0.50436
190.0	0.52445	0.52139	0.51861	0.51608	0.51381	C.51178	C.50998	0.50840	0.50702	0.50583
192.5	0.53057	0.52676	0.52328	0.52013	0.51729	C.51475	C.51250	0.51053	0.50880	0.50730
195.0	0.53670	0.53214	0.52797	0.52419	0.52078	C.51774	C.51504	0.51267	0.51059	0.50879
197.5	0.54284	0.53753	0.53268	0.52827	0.52430	C.52075	C.51760	0.51482	0.51240	0.51030
200.0	0.54895	0.54294	0.53740	0.53238	0.52784	C.52378	C.52018	0.51700	0.51423	0.51182
202.5	0.55515	0.54837	0.54216	0.53651	0.53141	C.52685	C.52279	0.51921	0.51608	0.51336
205.0	0.56132	0.55382	0.54694	0.54047	0.5352	C.52994	C.52543	0.52145	0.51796	0.51493
207.5	0.56751	C.55929	0.55175	0.54487	0.53885	C.53307	C.52810	0.52371	0.51987	0.51452
210.0	0.57371	0.56479	0.55659	0.54911	0.54233	C.53624	C.53082	0.52602	0.52181	C.51815
212.5	0.57993	0.57032	0.56147	0.55339	0.54665	C.53946	C.53357	0.52836	0.52379	0.51981
215.0	0.58616	0.57588	0.56639	0.55771	0.54982	C.54272	C.53638	0.53075	0.52581	0.52150
217.5	0.59241	0.58147	0.57135	0.56208	0.55364	C.54604	C.53923	0.53319	0.52788	0.52324
220.0	0.59865	0.58710	0.57636	0.56650	0.55752	C.54491	C.54214	0.53568	0.52999	0.52502
222.5	0.60499	0.59276	0.58142	0.57098	0.56146	C.55284	C.54511	0.53823	0.53216	0.52685
225.0	0.61130	0.59847	0.58653	0.57552	0.56546	C.55634	C.54815	0.54084	0.53439	0.52874
227.5	0.61765	C.60421	0.59169	C.58013	0.56953	C.55991	C.55125	0.54352	0.53668	0.53068
230.0	0.62401	0.61000	0.59692	C.5848C	0.57368	C.56356	C.55443	0.54627	0.53904	0.53269
232.5	0.63041	0.61584	0.6022C	C.58955	0.57790	C.56729	C.55770	0.54910	0.54148	0.53477
235.0	0.63683	0.62173	0.60755	C.59437	0.58221	C.57111	C.56105	0.55202	0.54399	0.53692
237.5	0.64328	0.62767	0.61297	C.59927	0.58661	C.57501	C.56449	0.55503	0.54660	0.53915
240.0	0.64976	0.63366	0.61846	C.60426	0.59110	C.57902	C.56803	0.55813	0.54929	0.54147
242.5	0.65627	0.63970	0.62403	C.60933	0.59569	C.58133	C.57168	0.56134	0.55209	0.54389
245.0	0.66281	C.64580	0.62967	0.61450	0.60038	C.58735	C.57544	0.56466	0.55499	0.54640
247.5	0.66938	0.65197	0.63539	C.61977	0.60518	C.59169	C.57932	0.56810	0.55801	0.54903
250.0	0.67598	0.65819	0.64120	C.62514	0.61010	C.59615	C.58333	0.57167	0.56116	0.55178
252.5	0.68262	0.66447	0.64710	C.63062	0.61514	C.60C74	C.58747	0.57537	0.56444	0.55466
255.0	0.68929	0.67082	0.65308	C.63620	0.62030	C.60547	C.59176	C.57922	0.56786	0.55767
257.5	0.69600	0.67724	0.65916	C.64190	0.6256C	C.61034	C.59620	0.58323	0.57144	0.56C83
260.0	0.70275	0.68373	0.66533	0.64773	0.631C3	C.61536	0.60080	0.58739	0.57518	0.56416
262.5	0.70952	0.65628	0.67161	C.65367	0.63661	C.62055	C.60557	0.59174	0.57910	0.56766
265.0	0.71634	0.65969	0.67798	C.65974	0.64234	C.62590	C.61C51	0.59627	0.58320	0.57134
267.5	0.72319	0.7C36C	0.68446	C.66595	0.64822	C.63142	C.61565	0.60099	0.58751	0.57523
270.0	0.73009	0.71037	0.69104	C.67229	0.65427	C.63713	C.62098	0.60593	0.59203	0.57933
272.5	0.73701	0.71721	0.69774	C.67877	0.66048	C.64302	C.62652	0.611C8	0.59678	0.58366
275.0	0.74398	C.72413	0.70454	C.6854C	0.66687	C.64512	C.63228	0.61647	0.60177	0.58823
277.5	0.75099	0.73113	0.71146	C.69217	0.67343	C.65542	C.63827	0.62210	0.60702	0.59308
280.0	0.75803	0.73820	0.71849	C.69905	0.68018	0.66194	0.64450	0.62800	0.61254	0.59820
282.5	0.76511	0.74535	0.72564	0.70617	0.68712	C.66867	C.65097	0.63416	0.61835	0.60362
285.0	0.77223	0.75258	0.73291	C.71341	0.69426	C.67564	C.65771	0.64062	0.62447	0.60937
287.5	0.77935	0.75989	C.74C30	C.7208C	0.70159	C.68284	C.66472	0.66737	0.63091	0.61546
290.0	0.78658	0.76727	0.74780	0.72836	0.70913	C.69C29	C.67201	0.65443	0.63769	0.62191
292.5	0.79382	0.77474	0.75543	0.73609	0.71688	C.69799	C.67958	0.66182	0.64483	0.62874
295.0	0.80109	0.78228	0.76318	C.74398	0.72464	C.70594	C.68746	0.66555	0.65235	0.63598
297.5	0.80835	0.78989	0.77105	C.75203	0.733C1	C.71416	C.69565	0.67763	0.66026	0.64345
300.0	0.81574	0.75759	0.77904	0.76026	0.74140	C.72265	C.70415	0.686C8	0.66857	0.65177
302.5	0.82311	C.8C536	0.78715	C.76865	0.750C1	C.73140	C.71298	0.69490	0.67731	0.66035
305.0	0.83053	0.81320	0.79539	0.77721	0.75885	C.74043	C.72214	0.7C411	0.6865C	0.66943
307.5	0.83797	0.82112	C.80373	0.78594	0.7679C	C.74974	C.73163	0.71371	0.69613	0.67902
310.0	0.84545	0.82911	0.81220	C.79484	0.77717	C.75933	C.74147	0.72327	0.70623	0.68913
312.5	0.85297	0.83717	0.82078	0.80390	0.78666	C.76920	C.75164	0.73413	0.71681	0.69979
315.0	0.86051	0.84530	0.82947	0.81312	0.79637	C.77934	C.76216	0.74496	0.72787	0.71101
317.5	0.86808	0.85350	0.83827	C.82251	C.80630	0.78977	C.77303	0.75620	0.73942	0.72280
320.0	0.87568	0.86176	0.84718	0.83204	C.81643	C.80C46	C.78423	0.76786	0.75147	0.73516
322.5	0.88331	0.87008	0.85619	0.84173	0.82677	C.81142	C.79578	0.77994	0.76401	0.74810
325.0	0.88997	0.87846	0.86530	0.85156	0.83721	C.82265	C.80765	0.79241	0.77704	0.76142
327.5	0.89865	0.88689	0.87450	C.86153	0.848C5	C.83412	C.81984	0.80C29	0.79056	0.77572
330.0	0.90635	0.89538	0.88379	0.87163	0.85896	C.84584	C.83235	0.81856	0.80454	0.79039
332.5	0.91408	C.9C392	0.89316	0.88186	0.870C5	C.85780	C.84516	0.83220	0.81899	0.80561
335.0	0.92182	C.91250	0.90262	0.89221	0.88131	C.86997	C.85825	0.84620	0.83388	0.82136
337.5	0.92959	C.92113	C.91214	0.90266	0.89272	0.88235	C.87161	0.86654	0.84919	0.83761
340.0	0.93737	0.92979	0.92173	0.91321	0.90426	C.89492	C.88521	0.87518	0.86488	0.85435
342.5	0.94516	0.93849	0.93138	0.92386	0.91594	C.9C766	C.89904	0.89012	0.88094	0.87152
345.0	0.95257	C.94722	0.94109	0.93458	0.92773	C.92C55	C.91307	0.90532	0.89731	0.88909
347.5	0.96C79	C.95598	0.95083	0.94538	0.93962	0.93358	C.92728	0.92074	0.91398	0.90702
350.0	0.96862	C.96475	0.96062	0.95623	0.95160	C.94673	C.94164	0.93635	0.93088	0.92524
352.5	0.97646	C.97355	0.97044	0.96713	0.96364	C.95996	C.95612	0.95213	0.94798	0.94371
355.0	0.9843C	C.98236	C.98028	0.97807	0.97573	C.97327	C.9707C	0.968C2	0.96524	0.96237
357.5	0.99215	C.99118	0.99014	0.98903	0.98786	C.98662	C.98533	0.98399	0.98259	0.98115
360.0	1.0000C	1.00000	1.00000	1.0000C	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

TABLE II. - PROBABILITY  $P(\phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\bar{\theta}$  AND  $\phi$  - Continued(b)  $\bar{R} = 1.1$  to  $2.0$ 

$\Phi$ , deg	$P(\phi)$ for $\bar{R}$ of -									
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
2.5	0.02033	C.02185	C.02340	C.02499	C.02659	C.02822	C.02987	0.03154	0.03322	0.03491
5.0	0.04058	C.04360	C.04669	C.04984	C.05303	C.05626	C.05953	0.06283	0.06615	0.06948
7.5	C.06066	C.06517	C.06976	C.07442	C.07915	C.08393	C.08876	0.09362	0.09851	0.10342
10.0	C.08054	0.08666	0.09249	C.09861	0.10480	C.11106	C.11736	0.12370	0.13005	0.13641
12.5	0.10011	C.10730	0.11478	C.12228	0.12986	C.13748	C.14515	0.15284	0.16652	0.16819
15.0	0.11931	C.12787	0.13655	C.14533	0.15418	C.16306	C.17197	C.18066	C.18973	0.19854
17.5	0.13808	C.14784	C.15771	C.16767	0.17766	C.18767	C.19767	C.20761	0.21749	0.22277
20.0	0.15637	C.16723	0.17819	C.18919	C.20022	C.21121	C.22214	0.23297	0.24366	C.25424
22.5	0.17413	C.18599	C.19791	0.20985	0.22176	C.23359	C.24529	0.25665	0.26821	C.27995
25.0	0.19131	C.20406	C.21684	C.22958	0.24223	C.25475	C.26707	C.27918	C.29101	C.30255
27.5	C.20785	0.22142	C.23493	C.24834	0.26160	C.27465	C.28744	C.29953	0.31207	0.32384
30.0	0.22383	0.23804	C.25215	0.26611	0.27984	C.29328	C.30639	0.31911	0.33140	0.34323
32.5	C.23912	C.25385	0.26849	C.28287	0.29694	C.31064	C.32392	0.33673	0.34903	0.36079
35.0	C.25374	C.26896	C.28395	0.29862	0.31291	C.32674	C.34007	0.35265	0.36503	0.37660
37.5	C.26769	C.28325	0.29851	C.31337	0.32776	C.34162	C.35488	0.36751	0.37948	C.39576
40.0	C.28096	C.29678	0.31220	C.32715	C.34154	C.35531	C.36841	C.38081	0.39246	C.40336
42.5	C.29356	C.30953	C.32503	C.33997	0.35427	C.36787	C.38073	0.39281	0.40408	C.41455
45.0	C.30550	C.32154	0.33703	C.35188	0.36661	C.37936	C.39191	0.40361	0.41445	0.42444
47.5	0.31679	0.33283	C.34823	C.36291	C.37680	C.38985	C.40202	0.41330	0.42368	C.43314
50.0	C.32745	C.34341	C.35866	C.37311	C.38670	C.39593	C.41115	C.42197	C.43186	C.44082
52.5	C.33750	C.35332	C.36835	0.38252	0.39577	C.40866	C.41938	C.42972	C.43910	C.44754
55.0	0.34697	0.36259	C.37735	0.39119	0.40466	C.41592	C.42678	C.43663	C.44550	C.45343
57.5	0.35587	C.37124	0.38570	C.39918	C.41163	C.42305	C.43343	C.44279	C.45115	C.45858
60.0	0.36423	0.37932	C.39343	C.40652	0.41854	C.42950	C.43940	C.44827	C.45614	C.46328
62.5	C.37208	C.38685	C.40059	0.41326	0.42464	C.43534	C.44476	C.45314	C.46054	C.46702
65.0	C.37945	C.39387	0.40721	C.41946	0.43059	C.44061	C.44957	C.45748	C.46443	C.47046
67.5	0.38636	C.40400	C.41334	0.42515	0.43582	C.44539	C.45388	C.46135	C.46786	C.47348
70.0	C.39284	C.40649	C.41901	0.43037	C.44660	0.44971	C.45755	C.46479	C.47089	C.47612
72.5	0.39892	C.41216	0.42425	C.43517	0.44495	C.45362	C.46124	0.46786	C.47357	C.47844
75.0	C.40462	C.41744	0.42910	C.43958	0.44892	C.45717	C.46437	C.47060	C.47594	C.48048
77.5	0.40996	C.42237	C.43359	C.44364	0.45255	C.46038	C.46719	C.47305	C.47805	C.48227
80.0	0.41457	C.42696	0.43775	C.44737	0.45587	C.46330	C.46973	C.47525	C.47993	C.48386
82.5	0.41968	C.43124	0.44160	C.45081	0.45891	C.46595	C.47203	C.47722	C.48160	C.48527
85.0	0.42410	C.43524	0.44518	C.45398	0.46169	C.46837	C.47411	0.47899	C.48310	C.48852
87.5	0.42826	C.43897	C.44851	C.45691	0.46425	C.47058	C.47600	0.48059	C.48444	0.48773
90.0	C.43217	C.44246	C.45160	0.45962	C.46660	C.47260	C.47772	C.48203	C.48564	C.48862
92.5	0.43585	C.44574	0.45448	C.46213	C.46876	C.47445	C.47928	0.48334	0.48672	C.48951
95.0	C.43932	C.44881	C.45717	C.46446	C.47076	C.47615	C.48071	0.48453	0.48771	C.49031
97.5	0.44259	C.45169	C.45968	C.46662	0.47261	C.47711	C.48202	0.48582	C.48860	C.49104
100.0	C.44565	C.45439	0.46202	C.46864	C.47432	C.47915	C.48322	0.48661	C.48941	C.49169
102.5	0.44861	C.45694	C.46422	C.47052	C.47551	C.48048	C.48432	C.48752	C.49014	C.49229
105.0	C.45138	C.45935	C.46629	0.47228	C.47739	C.48172	C.48534	C.48835	C.49082	C.49283
107.5	0.45401	C.46162	C.46823	C.47392	0.47877	C.48287	C.48629	C.48912	C.49144	C.49332
110.0	0.45651	C.46377	C.47006	C.47547	C.48006	C.48393	C.48716	C.48983	C.49201	C.49378
112.5	0.45889	C.46581	C.47179	0.47692	C.48127	C.48493	C.48798	C.49049	C.49254	C.49420
115.0	0.46115	C.46774	C.47343	C.47829	C.48241	C.48587	C.48874	C.49110	C.49303	C.49459
117.5	0.46331	C.46958	C.47498	0.47958	C.48348	C.48674	C.48945	C.49168	C.49349	C.49495
120.0	0.46538	C.47133	C.47645	C.48081	0.48449	C.48757	C.49012	C.49221	C.49391	C.49528
122.5	0.46736	C.47300	C.47785	C.48197	0.48545	C.48835	C.49075	C.49272	C.49431	C.49560
125.0	0.46926	C.47460	C.47918	C.48308	0.48635	C.48908	C.49134	C.49319	C.49469	C.49589
127.5	0.47108	C.47613	C.48046	C.48413	0.48721	C.48578	C.49190	0.49364	C.49504	C.49616
130.0	0.47284	C.47761	C.48168	C.48514	C.48804	C.49045	C.49244	C.49496	C.49537	C.49642
132.5	0.47453	C.47902	C.48285	C.48610	0.48882	C.49108	C.49294	C.49496	C.49569	C.49667
135.0	0.47616	C.48038	C.48398	C.48702	0.48957	C.49169	C.49342	C.49484	C.49599	C.49690
137.5	0.47775	C.48170	0.48507	C.48791	C.49029	C.49226	C.49389	C.49521	C.49627	C.49713
140.0	0.47928	C.48297	C.48612	C.48871	C.49058	C.49282	C.49433	C.49556	C.49655	C.49734
142.5	C.48077	C.48421	C.48713	C.48959	C.49165	C.49336	C.49476	C.49589	C.49681	C.49754
145.0	C.48222	C.48541	C.48811	C.49040	C.49230	C.49387	C.49517	C.49622	C.49706	C.49774
147.5	C.48363	C.48657	C.48907	C.49117	C.49293	C.49437	C.49556	C.49653	C.49730	C.49792
150.0	C.48501	C.48771	C.49000	C.49193	C.49353	C.49486	C.49595	C.49683	C.49754	C.49811
152.5	C.48636	C.48882	C.49091	0.49266	C.49412	C.49533	C.49632	C.49712	C.49777	C.49828
155.0	C.48768	C.48991	C.49180	C.49338	C.49470	C.49579	C.49668	C.49741	C.49799	C.49845
157.5	C.48898	C.49097	C.49266	C.49408	C.49527	C.49624	C.49704	C.49769	C.49820	C.49862
160.0	C.49025	C.49202	C.49352	C.49477	C.49582	C.49668	C.49739	C.49756	C.49842	C.49878
162.5	C.49151	C.49305	C.49436	C.49545	0.49636	C.49711	C.49773	C.49822	C.49862	C.49894
165.0	C.49275	C.49407	C.49519	C.49612	C.49650	C.49754	C.49806	C.49849	C.49883	C.49910
167.5	C.49398	C.49508	0.49600	C.49678	C.49742	C.49796	C.49839	C.49874	C.49903	C.49925
170.0	C.49520	C.49607	C.49681	C.49743	0.49755	C.49837	C.49872	C.49900	C.49922	C.49940
172.5	C.49641	C.49706	C.49761	C.49808	0.49846	C.49868	C.49904	C.49925	C.49942	C.49955
175.0	C.49761	C.49804	C.49841	C.49872	C.49858	C.49919	C.49936	C.49950	C.49961	C.49970
177.5	C.49880	C.49902	C.49921	C.49936	C.49949	C.49959	C.49968	C.49975	C.49981	C.49985
180.0	0.50000	C.50000	0.50000	0.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\bar{\theta}$  AND  $\Phi$  - Continued(b)  $R = 1.1$  to  $2.0$  - Concluded

$\Phi$ , deg	P( $\Phi$ ) for $R$ of -									
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
182.5	0.50119	0.50098	0.50079	0.50064	0.50051	0.50040	0.50032	0.50025	0.50019	0.50014
185.0	0.50239	0.50196	0.50159	0.50128	0.50102	0.50081	0.50064	0.50050	0.50038	0.50029
187.5	0.50359	0.50294	0.50238	0.50192	0.50154	0.50122	0.50096	0.50075	0.50058	0.50044
190.0	0.50480	0.50393	0.50319	0.50257	0.50205	0.50163	0.50128	0.50100	0.50077	0.50059
192.5	0.50602	0.50492	0.50400	0.50322	0.50257	0.50204	0.50161	0.50125	0.50097	0.50074
195.0	0.50725	0.50593	0.50481	0.50388	0.50310	0.50246	0.50194	0.50151	0.50117	0.50090
197.5	0.50845	0.50695	0.50564	0.50455	0.50364	0.50289	0.50227	0.50177	0.50137	0.50105
200.0	0.50975	0.50798	0.50648	0.50522	0.50418	0.50332	0.50261	0.50204	0.50158	0.50121
202.5	0.51102	0.50903	0.50733	0.50591	0.50473	0.50376	0.50296	0.50231	0.50179	0.50137
205.0	0.51232	0.51009	0.50820	0.50662	0.50530	0.50421	0.50331	0.50259	0.50201	0.50154
207.5	0.51364	0.51118	0.50909	0.50734	0.50587	0.50467	0.50368	0.50287	0.50223	0.50171
210.0	0.51495	0.51229	0.51000	0.50807	0.50647	0.50514	0.50405	0.50317	0.50246	0.50189
212.5	0.51637	0.51343	0.51093	0.50883	0.50707	0.50562	0.50444	0.50347	0.50269	0.50207
215.0	0.51776	0.51459	0.51188	0.50960	0.50770	0.50612	0.50483	0.50378	0.50293	0.50226
217.5	0.51923	0.51579	0.51287	0.51040	0.50835	0.50664	0.50524	0.50410	0.50319	0.50245
220.0	0.52072	0.51703	0.51388	0.51123	0.50901	0.50718	0.50567	0.50444	0.50345	0.50266
222.5	0.52226	0.51830	0.51493	0.51205	0.50971	0.50773	0.50611	0.50479	0.50372	0.50287
225.0	0.52384	0.51962	0.51602	0.51298	0.51043	0.50831	0.50657	0.50515	0.50401	0.50309
227.5	0.52547	0.52098	0.51714	0.51390	0.51118	0.50892	0.50706	0.50554	0.50431	0.50332
230.0	0.52716	0.52239	0.51832	0.51486	0.51196	0.50555	0.50756	0.50594	0.50462	0.50357
232.5	0.52892	0.52386	0.51954	0.51587	0.51278	0.51022	0.50809	0.50636	0.50496	0.50383
235.0	0.53074	0.52540	0.52081	0.51692	0.51365	0.51091	0.50866	0.50681	0.50531	0.50410
237.5	0.53264	0.52700	0.52215	0.51803	0.51455	0.51165	0.50925	0.50728	0.50568	0.50440
240.0	0.53462	0.52867	0.52355	0.51919	0.51551	0.51243	0.50988	0.50778	0.50608	0.50471
242.5	0.53666	0.53042	0.52502	0.52041	0.51652	0.51325	0.51055	0.50832	0.50651	0.50505
245.0	0.53885	0.53226	0.52657	0.52171	0.51759	0.51413	0.51126	0.50889	0.50696	0.50541
247.5	0.54111	0.53419	0.52821	0.52308	0.51872	0.51507	0.51202	0.50951	0.50745	0.50579
250.0	0.54346	0.53623	0.52994	0.52453	0.51994	0.51606	0.51283	0.51017	0.50798	0.50621
252.5	0.54595	0.53838	0.53177	0.52608	0.52123	0.51713	0.51371	0.51088	0.50856	0.50667
255.0	0.54862	0.54665	0.53371	0.52772	0.52261	0.51828	0.51465	0.51165	0.50918	0.50717
257.5	0.55139	0.54305	0.53578	0.52948	0.52409	0.51951	0.51567	0.51248	0.50985	0.50771
260.0	0.55431	0.54560	0.53798	0.53136	0.52568	0.52085	0.51678	0.51339	0.51059	0.50830
262.5	0.55741	0.54831	0.54032	0.53338	0.52739	0.52229	0.51798	0.51438	0.51140	0.50896
265.0	0.56068	0.55119	0.54283	0.53554	0.52924	0.52385	0.51929	0.51546	0.51229	0.50948
267.5	0.56415	0.55426	0.54552	0.53787	0.53124	0.52555	0.52072	0.51665	0.51327	0.51048
270.0	0.56783	0.55753	0.54840	0.54038	0.53340	0.52740	0.52228	0.51756	0.51436	0.51137
272.5	0.57174	0.56103	0.55149	0.54309	0.53575	0.52542	0.52400	0.51941	0.51556	0.51237
275.0	0.57590	0.56476	0.55482	0.54602	0.53831	0.53162	0.52589	0.52181	0.51690	0.51348
277.5	0.58032	0.56876	0.55840	0.54919	0.54109	0.53404	0.52797	0.52278	0.51840	0.51473
280.0	0.58503	0.57304	0.56225	0.55263	0.54413	0.53670	0.53027	0.52475	0.52007	0.51613
282.5	0.59004	0.57763	0.56641	0.55636	0.54745	0.53962	0.53281	0.52695	0.52194	0.51772
285.0	0.59538	0.58255	0.57090	0.56042	0.55108	0.54283	0.53563	0.52940	0.52405	0.51952
287.5	0.60108	0.58784	0.57575	0.56483	0.55505	0.54638	0.53876	0.53214	0.52643	0.52156
290.0	0.60716	0.59351	0.58099	0.56963	0.55940	0.55029	0.54224	0.53521	0.52911	0.52388
292.5	0.61364	0.59960	0.58666	0.57485	0.56417	0.55461	0.54612	0.53865	0.53214	0.52652
295.0	0.62055	0.60613	0.59279	0.58054	0.56941	0.55938	0.55043	0.54251	0.53557	0.52953
297.5	0.62792	0.61315	0.59941	0.58674	0.57515	0.56466	0.55524	0.54685	0.53945	0.53298
300.0	0.63577	0.62058	0.60657	0.59348	0.58146	0.57050	0.56060	0.55173	0.54385	0.53691
302.5	0.64413	0.62876	0.61430	0.60082	0.58837	0.57695	0.56657	0.55721	0.54884	0.54142
305.0	0.65303	0.62741	0.62265	0.60881	0.59594	0.58407	0.57322	0.56337	0.55449	0.54657
307.5	0.66250	0.64668	0.63165	0.61748	0.60423	0.59194	0.58062	0.57028	0.56090	0.55245
310.0	0.67255	0.65659	0.64134	0.62689	0.61330	0.60061	0.58885	0.578C2	0.56814	0.55917
312.5	0.68321	0.66717	0.65177	0.63709	0.62320	0.61015	0.59798	0.58670	0.57632	0.56684
315.0	0.69450	0.67846	0.66297	0.64812	0.63359	0.62063	0.60809	0.59639	0.58554	0.57555
317.5	0.70644	0.66047	0.67497	0.66003	0.64573	0.63213	0.61927	0.60719	0.59591	0.58544
320.0	0.711904	0.70322	0.68780	0.67285	0.65846	0.64469	0.63158	0.61919	0.60753	0.59663
322.5	0.73231	0.71675	0.70149	0.68663	0.67224	0.65838	0.64511	0.63248	0.62052	0.60924
325.0	0.74626	0.73104	0.71605	0.70138	0.68709	0.67326	0.65993	0.64715	0.63496	0.62340
327.5	0.76088	0.74611	0.73151	0.71713	0.70306	0.68936	0.67608	0.66326	0.65096	0.63920
330.0	0.77617	0.76196	0.74785	0.73389	0.72016	0.70672	0.69361	0.68089	0.66860	0.65676
332.5	0.79211	0.77858	0.76507	0.75166	0.73840	0.72535	0.71255	0.70007	0.68792	0.67615
335.0	0.80865	0.76594	0.78316	0.77042	0.75777	0.74525	0.73292	0.72082	0.70898	0.69744
337.5	0.82587	0.81401	0.80209	0.79015	0.77824	0.76641	0.75470	0.74315	0.73175	0.72064
340.0	0.84363	0.83277	0.82181	0.81086	0.79798	0.78879	0.77786	0.76702	0.75631	0.74575
342.5	0.86192	0.85216	0.84229	0.83233	0.82234	0.81232	0.80233	0.79238	0.78251	0.77272
345.0	0.88065	0.87213	0.86345	0.85467	0.84582	0.83693	0.82803	0.81914	0.81027	0.80145
347.5	0.88985	0.89261	0.88522	0.87772	0.87014	0.86251	0.85485	0.84716	0.83947	0.83180
350.0	0.91946	0.91354	0.90751	0.90139	0.89520	0.88894	0.88264	0.87630	0.86995	0.86358
352.5	0.93532	0.93483	0.93024	0.92558	0.92085	0.91607	0.91124	0.90637	0.90148	0.89658
355.0	0.95942	0.95640	0.95331	0.95016	0.94697	0.94374	0.94047	0.93717	0.93385	0.93051
357.5	0.97967	0.97815	0.97660	0.97501	0.97340	0.97177	0.97012	0.96846	0.96678	0.96509
360.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\theta$  AND  $\Phi$  - Continued(c)  $R = 2.1$  to  $3.0$ 

$\Phi$ , deg	$P(\Phi)$ for $\bar{R}$ of -									
	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
2.5	0.03660	C.03831	C.04C02	C.04174	C.04345	C.04517	C.04689	C.04862	0.05034	0.05206
5.0	0.07284	C.07620	C.07957	C.08294	C.08621	C.08969	C.09306	C.09642	0.09979	C.10315
7.5	0.10834	C.11326	0.11818	0.12310	0.12801	C.13291	C.13779	C.14266	C.14751	C.15233
10.0	0.14277	C.14912	0.15545	0.16176	0.16804	C.17428	C.18494	C.18665	C.19276	0.19882
12.5	0.17584	C.18345	0.19101	0.19852	0.2C596	C.21332	C.22061	C.22782	0.23494	0.24197
15.0	0.20730	C.21598	0.22456	0.23304	C.24141	C.24966	C.25178	C.26576	0.27360	0.28130
17.5	0.23694	C.24648	0.25587	0.26510	C.27415	C.28303	C.29171	0.30C19	0.30847	0.31655
20.0	0.26462	C.27481	0.28478	0.29452	0.304C3	C.31328	C.32227	C.33C59	0.33944	0.34762
22.5	0.29025	C.30C87	C.31121	C.32125	0.33C97	C.34036	C.34943	C.35815	0.36654	0.37459
25.0	0.31377	C.32464	C.33515	C.34527	0.355C1	C.36434	C.37327	0.38180	0.38992	0.39764
27.5	0.33520	0.34614	0.35663	0.36666	0.37623	C.38533	C.39397	0.40213	0.40983	0.417C9
30.0	0.35456	C.36543	0.37575	C.38554	C.3948C	C.40353	C.41173	C.41941	0.42659	C.43328
32.5	0.37195	C.38261	0.39263	C.4C206	0.41090	C.41915	C.42683	C.43355	0.44C54	0.44660
35.0	0.38753	0.35781	0.40743	0.41641	0.42474	C.43245	C.43955	C.446C7	0.45203	0.45745
37.5	0.40132	0.41118	0.42033	0.42879	0.43657	C.44369	C.45019	C.45668	C.46141	0.46621
40.0	0.4135C	C.42288	0.43151	C.43941	C.4466C	C.45313	C.45901	C.46430	0.46902	0.47321
42.5	0.42421	C.43306	C.44114	C.44847	0.45558	C.461C0	C.46630	C.47C59	0.47514	0.47879
45.0	0.43358	C.44190	C.44941	C.45616	0.46219	C.46755	C.47228	0.47643	0.4800E	0.48319
47.5	0.44177	C.44953	0.45648	0.46268	0.46815	C.47296	C.47717	0.48C81	0.48396	0.48666
50.0	0.44886	C.45611	C.46252	0.46817	C.47312	C.47743	C.48115	C.48435	0.48708	0.48939
52.5	0.455C8	C.46177	C.46766	C.47280	C.47727	C.48111	C.4844C	C.48719	C.48955	0.49152
55.0	0.46045	C.44663	C.47203	C.47670	C.48071	C.48414	C.48704	C.48948	0.49151	0.49320
57.5	0.46511	C.47C80	0.47574	0.47979	0.48358	C.48663	C.48519	C.49131	0.49307	0.49451
60.0	0.46914	C.47438	C.47889	C.48272	C.48596	C.48868	C.49C93	C.49279	0.49431	0.49554
62.5	0.47263	C.47746	0.48157	0.48504	0.48755	C.49037	C.49235	C.49358	0.49529	0.49635
65.0	0.47566	C.48C09	0.48385	0.48699	0.48961	C.49176	C.49352	C.49494	0.49608	0.49699
67.5	0.47826	C.48236	0.48579	0.48864	0.49099	C.49291	C.49447	C.49572	C.49671	0.49750
70.0	0.48C57	C.48432	C.48745	C.49003	0.49215	C.49387	C.49525	C.49635	0.49722	C.49790
72.5	0.48256	C.48601	0.48887	0.49122	C.49313	C.49467	C.49590	C.49667	0.49764	C.49823
75.0	0.48429	C.48747	C.49009	0.49222	0.49355	0.49534	C.49644	0.49730	0.49797	0.49849
77.5	0.48581	0.48873	0.49113	0.49308	0.49465	C.49590	C.49688	0.49765	C.49825	0.49870
80.0	0.48714	C.49894	0.49204	C.49382	0.49525	C.49637	C.49726	C.49795	C.49847	0.49888
82.5	0.48831	C.49C80	0.49283	C.49446	0.49575	C.49578	C.49757	C.49819	0.49866	0.49902
85.0	0.48934	C.49165	C.49351	0.49501	0.49619	C.49712	C.49784	C.49840	0.49882	0.49914
87.5	0.49026	C.49239	0.49411	C.49548	0.49657	C.49741	C.49807	C.49857	0.49895	0.49924
90.0	0.49107	C.49505	C.49464	C.49590	0.49689	C.49767	C.49827	0.49872	0.49907	0.49932
92.5	0.49179	C.49363	C.49510	C.49627	0.49718	C.49789	C.49843	0.49885	0.49916	0.49939
95.0	0.49244	C.49415	C.49551	C.49659	C.49743	C.49808	C.49858	C.49896	0.49924	C.49945
97.5	0.49302	C.49461	0.49588	0.49687	C.49765	C.49825	C.49871	C.49906	0.49931	C.49951
100.0	0.49354	0.49503	0.49620	C.49713	C.49785	C.49840	C.49882	0.49914	0.49938	0.49955
102.5	0.49402	C.49540	C.49650	C.49735	C.49802	C.49853	C.49892	C.49921	0.49943	0.49959
105.0	0.49445	C.49574	C.49767	C.49756	0.49818	C.49865	C.49901	C.49928	0.49948	0.49963
107.5	0.49484	C.49605	C.49700	C.49774	0.49832	C.49875	C.49909	C.49934	0.49952	0.49966
110.0	0.49520	C.49633	C.49722	C.49791	0.49844	C.49885	C.49916	C.49939	0.49956	0.49969
112.5	0.49553	C.49593	0.49741	C.49806	0.49856	C.49893	C.49922	C.49944	0.49959	0.49971
115.0	0.49584	C.49682	C.49760	C.49820	0.49866	C.49901	C.49928	C.49948	0.49962	0.49973
117.5	0.49612	C.49704	C.49776	0.49832	0.49876	C.49908	C.49933	0.49952	0.49965	0.49975
120.0	0.49638	0.49724	0.49792	C.49844	0.49884	C.49515	C.49938	0.49955	0.49968	0.49977
122.5	0.49662	C.49743	0.49806	C.49855	0.49893	C.49921	C.49942	C.49958	0.49970	0.49979
125.0	0.49685	C.49761	0.49819	0.49865	0.49900	C.49927	C.49947	0.49961	0.49972	0.49980
127.5	0.49706	C.49777	0.49832	0.49875	0.49907	C.49932	C.49950	0.49964	0.49974	0.49982
130.0	0.49726	0.49792	0.49844	0.49883	0.49914	C.49937	C.49954	0.49967	0.49976	0.49983
132.5	0.49745	C.49807	0.49855	C.49892	0.49920	C.49941	0.49957	0.49969	0.49978	0.49984
135.0	0.49763	C.49821	0.49865	C.49899	0.49926	C.49946	C.49960	0.49971	0.49979	0.49985
137.5	0.49781	0.49834	C.49875	C.49907	0.49931	C.49950	C.49963	0.49974	0.49981	0.49986
140.0	0.49797	C.49846	0.49884	0.49914	C.49936	C.49953	C.49966	0.49976	0.49982	0.49987
142.5	0.49812	C.49585	0.49893	0.49921	C.49941	C.49957	C.49969	0.49977	0.49984	0.49988
145.0	0.49827	C.49869	0.49902	C.49927	C.49946	C.49961	C.49971	0.49979	0.49985	0.49989
147.5	0.49842	C.49880	0.49910	C.49933	0.49951	C.49964	C.49974	0.49981	0.49986	0.49990
150.0	0.49856	0.49891	C.49918	C.49936	0.49955	C.49967	C.49976	0.49983	0.49988	0.49991
152.5	0.49865	0.49901	0.49926	C.49945	0.49959	C.49970	C.49978	0.49984	0.49989	0.49992
155.0	0.49882	0.49911	0.49933	C.49950	0.49963	C.49973	C.49981	0.49986	0.49990	0.49993
157.5	0.49895	0.49921	0.49940	0.49956	0.49967	C.49976	C.49983	0.49987	0.49991	0.49993
160.0	0.49907	0.49930	C.49947	C.49961	0.49971	C.49979	C.49985	0.49989	0.49992	0.49994
162.5	0.49919	0.49939	0.49954	0.49966	0.49975	C.49982	C.49987	0.49990	0.49993	0.49995
165.0	0.49931	0.49948	0.49961	C.49971	0.49979	C.49984	C.49989	0.49992	0.49994	0.49996
167.5	0.49943	0.49957	0.49968	C.49976	0.49982	C.49987	C.49991	0.49993	0.49995	0.49996
170.0	0.49955	C.49966	C.49974	C.49981	0.49986	C.49990	C.49992	0.49995	0.49996	0.49997
172.5	0.49966	0.49974	0.49981	0.49986	C.49989	C.49992	C.49994	0.49996	0.49997	0.49998
175.0	0.49977	0.49983	0.49987	C.4999C	0.49993	C.49995	C.49996	0.49997	0.49998	0.49998
177.5	0.49989	C.49991	C.49994	C.49995	0.49996	C.49997	C.49998	0.49999	0.49999	0.49999
180.0	0.50000	C.50000								

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\bar{\theta}$  AND  $\Phi$  - Continued(c)  $\bar{R} = 2.1$  to  $3.0$  - Concluded

$\Phi$ , deg	P( $\Phi$ ) for $R$ of -									
	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
182.5	0.50011	0.50008	0.50006	0.50005	0.50003	0.50002	0.50001	0.50001	0.50000	0.50000
185.0	0.50023	0.50017	0.50013	0.50009	0.50007	0.50005	0.50004	0.50003	0.50002	0.50001
187.5	0.50034	0.50026	0.50019	0.50014	0.50010	0.50008	0.50004	0.50003	0.50002	0.50001
190.0	0.50045	0.50034	0.50026	0.50019	0.50014	0.50010	0.50007	0.50005	0.50004	0.50002
192.5	0.50057	0.50043	0.50032	0.50024	0.50018	0.50013	0.50009	0.50007	0.50005	0.50003
195.0	0.50065	0.50052	0.50039	0.50029	0.50021	0.50015	0.50011	0.50008	0.50006	0.50004
197.5	0.50081	0.50061	0.50046	0.50034	0.50025	0.50018	0.50013	0.50009	0.50007	0.50004
200.0	0.50093	0.50070	0.50053	0.50039	0.50029	0.50021	0.50015	0.50008	0.50006	0.50003
202.5	0.50105	0.50079	0.50060	0.50044	0.50033	0.50024	0.50017	0.50012	0.50009	0.50006
205.0	0.50118	0.50089	0.50067	0.50050	0.50037	0.50027	0.50019	0.50014	0.50010	0.50007
207.5	0.50131	0.50099	0.50074	0.50055	0.50041	0.50030	0.50021	0.50015	0.50011	0.50007
210.0	0.50144	0.50109	0.50082	0.50061	0.50045	0.50033	0.50024	0.50017	0.50012	0.50008
212.5	0.50158	0.50120	0.50090	0.50067	0.50049	0.50036	0.50026	0.50019	0.50013	0.50009
215.0	0.50173	0.50131	0.50098	0.50073	0.50054	0.50039	0.50028	0.50020	0.50014	0.50010
217.5	0.50188	0.50142	0.50107	0.50079	0.50059	0.50043	0.50031	0.50022	0.50016	0.50011
220.0	0.50203	0.50154	0.50116	0.50086	0.50064	0.50046	0.50034	0.50024	0.50017	0.50012
222.5	0.50219	0.50166	0.50125	0.50093	0.50069	0.50050	0.50036	0.50026	0.50019	0.50013
225.0	0.50237	0.50179	0.50135	0.50101	0.50074	0.50054	0.50039	0.50028	0.50020	0.50014
227.5	0.50255	0.50193	0.50145	0.50108	0.50080	0.50059	0.50043	0.50031	0.50022	0.50015
230.0	0.50273	0.50208	0.50156	0.50117	0.50086	0.50063	0.50046	0.50033	0.50023	0.50016
232.5	0.50294	0.50223	0.50168	0.50125	0.50093	0.50068	0.50049	0.50036	0.50025	0.50018
235.0	0.50315	0.50239	0.50180	0.50135	0.50100	0.50073	0.50053	0.50038	0.50027	0.50019
237.5	0.50338	0.50257	0.50194	0.50145	0.50107	0.50079	0.50057	0.50041	0.50029	0.50021
240.0	0.50362	0.50276	0.50208	0.50156	0.50115	0.50085	0.50062	0.50045	0.50032	0.50022
242.5	0.50388	0.50296	0.50224	0.50167	0.50124	0.50091	0.50067	0.50048	0.50034	0.50024
245.0	0.50416	0.50318	0.50240	0.50180	0.50134	0.50099	0.50072	0.50052	0.50037	0.50026
247.5	0.50447	0.50341	0.50258	0.50194	0.50144	0.50106	0.50078	0.50056	0.50040	0.50028
250.0	0.50480	0.50367	0.50278	0.50209	0.50156	0.50115	0.50084	0.50061	0.50044	0.50031
252.5	0.50516	0.50395	0.50300	0.50226	0.50168	0.50124	0.50091	0.50066	0.50047	0.50034
255.0	0.50555	0.50426	0.50324	0.50244	0.50182	0.50135	0.50099	0.50072	0.50052	0.50037
257.5	0.50598	0.50460	0.50350	0.50265	0.50198	0.50147	0.50108	0.50078	0.50056	0.50040
260.0	0.50645	0.50497	0.50380	0.50287	0.50215	0.50160	0.50118	0.50086	0.50062	0.50044
262.5	0.50698	0.50539	0.50412	0.50313	0.50235	0.50175	0.50129	0.50094	0.50068	0.50049
265.0	0.50756	0.50585	0.50449	0.50341	0.50257	0.50192	0.50142	0.50104	0.50075	0.50054
267.5	0.50821	0.50637	0.50490	0.50373	0.50282	0.50211	0.50156	0.50115	0.50083	0.50060
270.0	0.50893	0.50695	0.50536	0.50410	0.50310	0.50233	0.50173	0.50128	0.50093	0.50067
272.5	0.50974	0.50761	0.50589	0.50452	0.50343	0.50258	0.50193	0.50143	0.50104	0.50076
275.0	0.51666	0.50835	0.50649	0.50499	0.50381	0.50288	0.50216	0.50160	0.50118	0.50086
277.5	0.51165	0.50920	0.50717	0.50554	0.50425	0.50322	0.50242	0.50181	0.50133	0.50097
280.0	0.51286	0.51016	0.50796	0.50618	0.50475	0.50363	0.50274	0.50205	0.50152	0.50112
282.5	0.51419	0.51126	0.50886	0.50692	0.50535	0.50410	0.50311	0.50234	0.50175	0.50129
285.0	0.51571	0.51253	0.50991	0.50778	0.50687	0.50567	0.50410	0.50312	0.50236	0.50177
287.5	0.51744	0.51399	0.51113	0.50878	0.50787	0.50687	0.50533	0.50410	0.50327	0.50209
290.0	0.51943	0.51568	0.51255	0.50997	0.50878	0.50613	0.50475	0.50364	0.50277	0.50250
292.5	0.52171	0.51764	0.51421	0.51136	0.50961	0.50709	0.50553	0.50428	0.50328	0.50301
295.0	0.52434	0.51990	0.51615	0.51301	0.51039	0.50824	0.50648	0.50506	0.50392	0.50365
297.5	0.52737	0.52254	0.51843	0.51496	0.51205	0.50963	0.50764	0.50602	0.50470	0.50446
300.0	0.53086	0.52562	0.52111	0.51728	0.51444	0.51132	0.50907	0.50721	0.50569	0.50549
302.5	0.53489	0.52919	0.52426	0.52003	0.51642	0.51337	0.51081	0.50868	0.50693	0.50680
305.0	0.53655	0.53337	0.52797	0.52330	0.51929	0.51586	0.51296	0.51052	0.50848	0.50847
307.5	0.54492	0.53823	0.53234	0.52726	0.52273	0.51889	0.51560	0.51280	0.51045	0.50847
310.0	0.55111	0.54389	0.53748	0.53183	0.52688	0.52257	0.51884	0.51565	0.51292	0.51061
312.5	0.55823	0.55047	0.54351	0.53732	0.53185	0.52704	0.52283	0.51918	0.51603	0.51333
315.0	0.56642	0.55810	0.55059	0.54384	0.53781	0.53245	0.52772	0.52357	0.51995	0.51680
317.5	0.57579	0.56694	0.55886	0.55153	0.54492	0.53899	0.53370	0.52900	0.52485	0.52121
320.0	0.58656	0.57712	0.56849	0.56059	0.55339	0.54687	0.54098	0.53570	0.53098	0.52678
322.5	0.59868	0.58882	0.57967	0.57121	0.56343	0.55631	0.54981	0.54352	0.53859	0.53379
325.0	0.61247	0.60219	0.59257	0.58359	0.57526	0.56755	0.56045	0.55393	0.54797	0.54254
327.5	0.62801	0.61739	0.60737	0.59794	0.58910	0.58085	0.57317	0.56604	0.55946	0.55339
330.0	0.64542	0.63457	0.62425	0.61446	0.60520	0.59647	0.58827	0.58058	0.57341	0.56672
332.5	0.66480	0.65386	0.64337	0.63334	0.62377	0.61467	0.60603	0.59787	0.59016	0.58291
335.0	0.68623	0.67536	0.66485	0.65473	0.64499	0.63586	0.62673	0.61820	0.61007	0.60235
337.5	0.70975	0.69913	0.68879	0.67875	0.66903	0.65963	0.65057	0.64184	0.63346	0.62541
340.0	0.73538	0.72519	0.71522	0.70548	0.69597	0.68672	0.67773	0.66961	0.66055	0.65237
342.5	0.76306	0.75352	0.74413	0.73490	0.72585	0.71697	0.70829	0.69980	0.69152	0.68345
345.0	0.79270	0.78402	0.77544	0.76696	0.75859	0.75034	0.74222	0.73424	0.72639	0.71870
347.5	0.82416	0.81655	0.80899	0.80148	0.79404	0.78667	0.77939	0.77218	0.76506	0.75803
350.0	0.85723	0.85088	0.84455	0.83824	0.83196	0.82572	0.81951	0.81335	0.80724	0.80117
352.5	0.89166	0.88674	0.88182	0.87690	0.87199	0.86709	0.86220	0.85734	0.85249	0.84766
355.0	0.92716	0.92380	0.92043	0.91706	0.91369	0.91031	0.90694	0.90357	0.90021	0.89685
357.5	0.96339	0.96169	0.95998	0.95826	0.95655	0.95483	0.95310	0.95138	0.94966	0.94793
360.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\theta$  AND  $\Phi$  - Continued(d)  $R = 3.1$  to  $4.0$ 

$\Phi$ , deg	$P(\Phi)$ for $R$ of -									
	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
2.5	0.05379	0.05551	0.05723	0.05895	0.06067	0.06239	0.06411	0.06582	0.06754	0.06925
5.0	0.10650	0.10985	0.11318	0.11651	0.11984	0.12315	0.12645	0.12975	0.13304	0.13631
7.5	0.15714	0.16192	0.16668	0.17141	0.17611	0.18079	0.18543	0.19005	0.19464	0.19920
10.0	0.20484	0.21280	0.21670	0.22255	0.22833	0.23406	0.23973	0.24533	0.25087	0.25634
12.5	0.24890	0.25574	0.26248	0.26911	0.27564	0.28207	0.28839	0.29460	0.30070	0.30669
15.0	0.28885	0.29562	0.30349	0.31058	0.31750	0.32427	0.33088	0.33732	0.34361	0.34973
17.5	0.32441	0.33206	0.33950	0.34671	0.35372	0.36050	0.36706	0.37342	0.37955	0.38548
20.0	0.35553	0.36315	0.37050	0.37757	0.38437	0.39089	0.39715	0.40315	0.40888	0.41436
22.5	0.38230	0.38966	0.39670	0.40341	0.40979	0.41585	0.42161	0.42706	0.43221	0.43708
25.0	0.40497	0.41191	0.41866	0.42464	0.43046	0.43593	0.44106	0.44586	0.45035	0.45453
27.5	0.42390	0.43028	0.43624	0.44180	0.44698	0.45178	0.45623	0.46034	0.46413	0.46762
30.0	0.43949	0.44524	0.45056	0.45564	0.45955	0.46408	0.46785	0.47129	0.47441	0.47725
32.5	0.45217	0.45727	0.46192	0.46616	0.47000	0.47347	0.47660	0.47941	0.48194	0.48419
35.0	0.46238	0.46683	0.47084	0.47444	0.47767	0.48054	0.48310	0.48536	0.48736	0.48911
37.5	0.47051	0.47435	0.47776	0.48079	0.48346	0.48580	0.48786	0.48965	0.49121	0.49255
40.0	0.47694	0.48021	0.48309	0.48560	0.48779	0.48968	0.49131	0.49271	0.49391	0.49493
42.5	0.48198	0.48475	0.48715	0.48922	0.49059	0.49251	0.49379	0.49488	0.49579	0.49656
45.0	0.48591	0.48824	0.49024	0.49193	0.49336	0.49456	0.49556	0.49640	0.49709	0.49766
47.5	0.48897	0.49092	0.49257	0.49394	0.49509	0.49604	0.49682	0.49746	0.49795	0.49841
50.0	0.49134	0.49297	0.49432	0.49544	0.49636	0.49711	0.49771	0.49820	0.49860	0.49891
52.5	0.49317	0.49453	0.49564	0.49655	0.49728	0.49787	0.49835	0.49872	0.49902	0.49925
55.0	0.49458	0.49572	0.49663	0.49737	0.49796	0.49843	0.49879	0.49908	0.49930	0.49948
57.5	0.49568	0.49662	0.49738	0.49798	0.49845	0.49882	0.49911	0.49933	0.49950	0.49963
60.0	0.49653	0.49732	0.49794	0.49843	0.49882	0.49911	0.49934	0.49951	0.49964	0.49974
62.5	0.49719	0.49785	0.49837	0.49878	0.49909	0.49932	0.49950	0.49964	0.49973	0.49981
65.0	0.49771	0.49827	0.49870	0.49903	0.49928	0.49948	0.49962	0.49972	0.49980	0.49986
67.5	0.49811	0.49859	0.49895	0.49923	0.49943	0.49959	0.49970	0.49979	0.49985	0.49989
70.0	0.49843	0.49883	0.49914	0.49937	0.49955	0.49967	0.49977	0.49984	0.49988	0.49992
72.5	0.49868	0.49903	0.49929	0.49949	0.49963	0.49974	0.49981	0.49987	0.49991	0.49994
75.0	0.49889	0.49919	0.49941	0.49958	0.49970	0.49979	0.49985	0.49990	0.49993	0.49995
77.5	0.49905	0.49931	0.49950	0.49965	0.49975	0.49982	0.49988	0.49991	0.49994	0.49996
80.0	0.49918	0.49941	0.49958	0.49970	0.49979	0.49985	0.49990	0.49993	0.49995	0.49997
82.5	0.49926	0.49949	0.49964	0.49974	0.49982	0.49988	0.49991	0.49994	0.49996	0.49997
85.0	0.49938	0.49956	0.49969	0.49978	0.49985	0.49989	0.49993	0.49995	0.49997	0.49998
87.5	0.49945	0.49961	0.49973	0.49981	0.49987	0.49991	0.49994	0.49996	0.49997	0.49998
90.0	0.49952	0.49966	0.49976	0.49983	0.49988	0.49992	0.49995	0.49996	0.49997	0.49998
92.5	0.49957	0.49969	0.49979	0.49985	0.49990	0.49993	0.49995	0.49997	0.49998	0.49998
95.0	0.49961	0.49973	0.49981	0.49987	0.49991	0.49994	0.49996	0.49997	0.49998	0.49999
97.5	0.49965	0.49975	0.49983	0.49988	0.49992	0.49994	0.49996	0.49997	0.49998	0.49999
100.0	0.49966	0.49978	0.49985	0.49989	0.49993	0.49995	0.49997	0.49998	0.49998	0.49999
102.5	0.49971	0.49980	0.49986	0.49990	0.49993	0.49995	0.49997	0.49998	0.49999	0.49999
105.0	0.49974	0.49982	0.49987	0.49991	0.49994	0.49996	0.49997	0.49998	0.49999	0.49999
107.5	0.49976	0.49983	0.49988	0.49992	0.49995	0.49996	0.49997	0.49998	0.49999	0.49999
110.0	0.49978	0.49985	0.49989	0.49993	0.49995	0.49997	0.49998	0.49998	0.49999	0.49999
112.5	0.49980	0.49986	0.49990	0.49993	0.49995	0.49997	0.49998	0.49999	0.49999	0.49999
115.0	0.49981	0.49987	0.49991	0.49994	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999
117.5	0.49983	0.49988	0.49992	0.49994	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999
120.0	0.49984	0.49989	0.49992	0.49995	0.49996	0.49998	0.49998	0.49999	0.49999	0.49999
122.5	0.49985	0.49990	0.49993	0.49995	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999
125.0	0.49986	0.49990	0.49993	0.49995	0.49997	0.49998	0.49999	0.49999	0.49999	0.49999
127.5	0.49987	0.49991	0.49994	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999	0.49999
130.0	0.49988	0.49992	0.49994	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999	0.49999
132.5	0.49989	0.49992	0.49995	0.49996	0.49998	0.49998	0.49999	0.49999	0.49999	0.49999
135.0	0.49990	0.49993	0.49995	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999	0.49999
137.5	0.49991	0.49994	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999	0.49999	0.49999
140.0	0.49991	0.49994	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999	0.49999	0.49999
142.5	0.49992	0.49994	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999	0.49999	0.50000
145.0	0.49993	0.49995	0.49997	0.49997	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000
147.5	0.49993	0.49995	0.49997	0.49997	0.49998	0.49998	0.49999	0.49999	0.50000	0.50000
150.0	0.49994	0.49996	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000
152.5	0.49995	0.49996	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000
155.0	0.49995	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999	0.49999	0.50000	0.50000
157.5	0.49996	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999	0.49999	0.50000	0.50000
160.0	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000
162.5	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000
165.0	0.49997	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000
167.5	0.49998	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000
170.0	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
172.5	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
175.0	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
177.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
180.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\theta$  AND  $\Phi$  - Continued(d)  $R = 3.1$  to  $4.0$  - Concluded

$\Phi$ , deg	P( $\Phi$ ) for $\bar{R}$ of -									
	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
182.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
185.0	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
187.5	0.50001	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
190.0	0.50002	0.50001	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
192.5	0.50002	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
195.0	0.50003	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
197.5	0.50003	0.50002	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000
200.0	0.50004	0.50003	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000
202.5	0.50004	0.50003	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000
205.0	0.50005	0.50003	0.50002	0.50002	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000
207.5	0.50005	0.50004	0.50003	0.50002	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000
210.0	0.50006	0.50004	0.50003	0.50002	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000
212.5	0.50007	0.50005	0.50003	0.50002	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000
215.0	0.50007	0.50005	0.50003	0.50002	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000
217.5	0.50008	0.50005	0.50004	0.50003	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000
220.0	0.50009	0.50006	0.50004	0.50003	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000
222.5	0.50009	0.50006	0.50004	0.50003	0.50002	0.50001	0.50000	0.50000	0.50000	0.50000
225.0	0.50010	0.50007	0.50005	0.50003	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000
227.5	0.50011	0.50008	0.50005	0.50004	0.50002	0.50001	0.50001	0.50000	0.50000	0.50000
230.0	0.50012	0.50008	0.50006	0.50004	0.50003	0.50002	0.50001	0.50000	0.50000	0.50000
232.5	0.50013	0.50009	0.50006	0.50004	0.50003	0.50002	0.50001	0.50000	0.50000	0.50000
235.0	0.50014	0.50009	0.50007	0.50004	0.50003	0.50002	0.50001	0.50000	0.50000	0.50000
237.5	0.50015	0.50010	0.50007	0.50005	0.50003	0.50002	0.50001	0.50000	0.50000	0.50000
240.0	0.50016	0.50011	0.50008	0.50005	0.50004	0.50002	0.50001	0.50000	0.50000	0.50000
242.5	0.50017	0.50012	0.50008	0.50006	0.50004	0.50003	0.50002	0.50001	0.50000	0.50000
245.0	0.50019	0.50013	0.50009	0.50006	0.50004	0.50003	0.50002	0.50001	0.50000	0.50000
247.5	0.50020	0.50014	0.50010	0.50007	0.50005	0.50003	0.50002	0.50001	0.50000	0.50000
250.0	0.50022	0.50015	0.50011	0.50007	0.50005	0.50003	0.50002	0.50001	0.50000	0.50000
252.5	0.50024	0.50017	0.50012	0.50008	0.50006	0.50004	0.50002	0.50001	0.50000	0.50000
255.0	0.50026	0.50018	0.50013	0.50009	0.50006	0.50004	0.50003	0.50002	0.50001	0.50000
257.5	0.50028	0.50020	0.50014	0.50010	0.50007	0.50004	0.50003	0.50002	0.50001	0.50000
260.0	0.50032	0.50022	0.50015	0.50011	0.50007	0.50005	0.50003	0.50002	0.50001	0.50000
262.5	0.50035	0.50025	0.50017	0.50012	0.50008	0.50005	0.50004	0.50003	0.50002	0.50001
265.0	0.50039	0.50027	0.50019	0.50013	0.50009	0.50006	0.50004	0.50003	0.50002	0.50001
267.5	0.50043	0.50031	0.50021	0.50015	0.50010	0.50007	0.50005	0.50003	0.50002	0.50001
270.0	0.50048	0.50034	0.50024	0.50017	0.50012	0.50008	0.50005	0.50003	0.50002	0.50001
272.5	0.50055	0.50039	0.50027	0.50019	0.50013	0.50009	0.50006	0.50004	0.50003	0.50002
275.0	0.50062	0.50044	0.50031	0.50022	0.50015	0.50011	0.50007	0.50005	0.50003	0.50002
277.5	0.50071	0.50051	0.50036	0.50026	0.50018	0.50012	0.50008	0.50006	0.50004	0.50002
280.0	0.50082	0.50059	0.50042	0.50032	0.50021	0.50015	0.50010	0.50007	0.50004	0.50003
282.5	0.50095	0.50069	0.50050	0.50035	0.50025	0.50017	0.50012	0.50008	0.50006	0.50004
285.0	0.50111	0.50081	0.50059	0.50042	0.50030	0.50021	0.50015	0.50010	0.50007	0.50005
287.5	0.50132	0.50097	0.50071	0.50051	0.50037	0.50026	0.50018	0.50013	0.50009	0.50006
290.0	0.50157	0.50116	0.50086	0.50063	0.50045	0.50032	0.50023	0.50016	0.50011	0.50008
292.5	0.50189	0.50141	0.50105	0.50077	0.50057	0.50041	0.50029	0.50021	0.50015	0.50010
295.0	0.50229	0.50173	0.50130	0.50097	0.50071	0.50052	0.50038	0.50027	0.50019	0.50014
297.5	0.50281	0.50215	0.50163	0.50122	0.50091	0.50068	0.50050	0.50036	0.50026	0.50019
300.0	0.50347	0.50268	0.50206	0.50156	0.50118	0.50089	0.50066	0.50049	0.50036	0.50026
302.5	0.50432	0.50338	0.50262	0.50202	0.50155	0.50118	0.50089	0.50066	0.50049	0.50036
305.0	0.50542	0.50428	0.50337	0.50263	0.5024	0.50157	0.50120	0.50092	0.50069	0.50052
307.5	0.50683	0.50547	0.50436	0.50345	0.50272	0.50212	0.50165	0.50128	0.50098	0.50075
310.0	0.50866	0.50703	0.50568	0.50456	0.50364	0.50289	0.50228	0.50179	0.50140	0.50109
312.5	0.51103	0.50908	0.50743	0.50606	0.50491	0.50396	0.50317	0.50253	0.50201	0.50159
315.0	0.51409	0.51176	0.50976	0.50807	0.50664	0.50544	0.50443	0.50360	0.50290	0.50233
317.5	0.51802	0.51525	0.51285	0.51078	0.50900	0.50749	0.50621	0.50512	0.50420	0.50344
320.0	0.52306	0.51979	0.51691	0.51440	0.51221	0.51032	0.50869	0.50728	0.50608	0.50506
322.5	0.52945	0.52565	0.52223	0.51921	0.51654	0.51419	0.51214	0.51035	0.50879	0.50744
325.0	0.53762	0.53317	0.52916	0.52555	0.52233	0.51946	0.51690	0.51464	0.51264	0.51088
327.5	0.54783	0.54273	0.53807	0.53384	0.53000	0.52653	0.52340	0.52058	0.51806	0.51580
330.0	0.56051	0.55476	0.54944	0.54455	0.54005	0.53592	0.53215	0.52871	0.52558	0.52275
332.5	0.57610	0.56972	0.56376	0.55820	0.5532	0.54822	0.54377	0.53966	0.53586	0.53237
335.0	0.59503	0.58809	0.58154	0.57536	0.56954	0.56407	0.55894	0.55414	0.54965	0.54546
337.5	0.61770	0.61033	0.60330	0.59659	0.59021	0.58415	0.57835	0.57294	0.56778	0.56291
340.0	0.64447	0.63685	0.62950	0.62243	0.61563	0.60510	0.60285	0.59685	0.59112	0.58564
342.5	0.67559	0.66794	0.66050	0.65328	0.64628	0.63950	0.63293	0.62658	0.62044	0.61452
345.0	0.71115	0.70375	0.69651	0.68942	0.68250	0.67573	0.66912	0.66267	0.65635	0.65027
347.5	0.75110	0.74426	0.73752	0.73089	0.72436	0.71793	0.71161	0.70540	0.69930	0.69331
350.0	0.79516	0.78920	0.78330	0.77745	0.77167	0.76594	0.76027	0.75467	0.74913	0.74365
352.5	0.84286	0.82808	0.81332	0.80855	0.82389	0.81921	0.81456	0.80994	0.80535	0.80079
355.0	0.89350	0.86015	0.86682	0.86349	0.88016	0.87685	0.87354	0.8725	0.86696	0.86368
357.5	0.94621	0.94449	0.94277	0.94105	0.93933	0.93761	0.93589	0.93417	0.93246	0.93074
360.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\theta$  AND  $\Phi$  - Continued(e)  $R = 4.1$  to 5.0

$\Phi$ , deg	$P(\Phi)$ for $R$ of -									
	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
2.5	0.07097	0.07268	0.07439	0.07610	0.07781	0.07951	0.08122	0.08292	0.08462	0.08632
5.0	0.13558	0.14284	0.14608	0.14932	0.15254	0.15576	0.15896	0.16215	0.16533	0.16850
7.5	0.20373	0.20823	0.21269	0.21712	0.22152	0.22589	0.23022	0.23451	0.23878	0.24300
10.0	0.26175	0.26710	0.27237	0.27758	0.28272	0.28779	0.29279	0.29772	0.30258	0.30737
12.5	0.31257	0.31834	0.32399	0.32954	0.33457	0.34028	0.34549	0.35058	0.35555	0.36042
15.0	0.35569	0.36149	0.36713	0.37261	0.37793	0.38309	0.38809	0.39294	0.39764	0.40218
17.5	0.39119	0.39570	0.40200	0.40710	0.41200	0.41670	0.42122	0.42554	0.42968	0.43365
20.0	0.41959	0.42457	0.42931	0.43382	0.43811	0.44217	0.44603	0.44967	0.45312	0.45637
22.5	0.44168	0.44600	0.45007	0.45399	0.45747	0.46082	0.46396	0.46689	0.46961	0.47215
25.0	0.45843	0.46205	0.46541	0.46852	0.47140	0.47405	0.47650	0.47875	0.48081	0.48270
27.5	0.47083	0.47377	0.47646	0.47891	0.48114	0.48317	0.48500	0.48667	0.48817	0.48952
30.0	0.47982	0.48214	0.48422	0.48610	0.48778	0.48928	0.49061	0.49180	0.49286	0.49379
32.5	0.48620	0.48799	0.48957	0.49096	0.49219	0.49327	0.49422	0.49505	0.49576	0.49639
35.0	0.49066	0.49200	0.49318	0.49419	0.49508	0.49584	0.49649	0.49705	0.49753	0.49793
37.5	0.49372	0.49542	0.49557	0.49630	0.49692	0.49745	0.49789	0.49826	0.49857	0.49883
40.0	0.49580	0.49653	0.49715	0.49766	0.49809	0.49845	0.49874	0.49898	0.49918	0.49934
42.5	0.49720	0.49773	0.49816	0.49852	0.49882	0.49906	0.49925	0.49941	0.49953	0.49963
45.0	0.49813	0.49851	0.49882	0.49907	0.49927	0.49943	0.49955	0.49965	0.49973	0.49979
47.5	0.49875	0.49902	0.49924	0.49941	0.49955	0.49965	0.49973	0.49980	0.49985	0.49988
50.0	0.49916	0.49935	0.49951	0.49963	0.49972	0.49979	0.49984	0.49988	0.49991	0.49993
52.5	0.49943	0.49957	0.49968	0.49976	0.49982	0.49987	0.49990	0.49993	0.49995	0.49996
55.0	0.49961	0.49971	0.49979	0.49984	0.49989	0.49992	0.49994	0.49996	0.49997	0.49998
57.5	0.49972	0.49980	0.49986	0.49990	0.49993	0.49995	0.49997	0.49998	0.49997	0.49999
60.0	0.49981	0.49986	0.49990	0.49993	0.49995	0.49997	0.49998	0.49998	0.49999	0.49999
62.5	0.49986	0.49990	0.49993	0.49995	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999
65.0	0.49993	0.49993	0.49995	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999	0.49999
67.5	0.49993	0.49995	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000
70.0	0.49995	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000
72.5	0.49996	0.49997	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000
75.0	0.49997	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000
77.5	0.49997	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000
80.0	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
82.5	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
85.0	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
87.5	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
90.0	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
92.5	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
95.0	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
97.5	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
100.0	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
102.5	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
105.0	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
107.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
110.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
112.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
115.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
117.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
120.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
122.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
125.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
127.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
130.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
132.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
135.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
137.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
140.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
142.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
145.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
147.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
150.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
152.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
155.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
157.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
160.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
162.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
165.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
167.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
170.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
172.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
175.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
177.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
180.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\theta$  AND  $\Phi$  - Continued(e)  $\bar{R} = 4.1$  to  $5.0$  - Concluded

$\Phi$ , deg	$P(\Phi)$ for $\bar{R}$ of -									
	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
182.5	0.50000	0.50000	0.50000	C.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
185.0	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
187.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
190.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
192.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
195.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
197.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
200.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
202.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
205.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
207.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
210.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
212.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
215.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
217.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
220.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
222.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
225.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
227.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
230.0	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
232.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
235.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
237.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
240.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
242.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
245.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
247.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
250.0	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
252.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
255.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
257.5	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
260.0	0.50001	0.50000	C.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
262.5	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
265.0	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
267.5	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
270.0	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
272.5	0.50001	0.50001	0.50000	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
275.0	0.50001	0.50001	0.50001	0.50000	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
277.5	0.50002	0.50001	0.50001	0.50001	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
280.0	0.50002	0.50002	0.50001	0.50001	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
282.5	0.50003	0.50002	0.50001	0.50001	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
285.0	0.50003	0.50002	0.50001	0.50001	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
287.5	0.50004	0.50003	0.50002	0.50001	0.50000	0.50000	C.50000	0.50000	0.50000	0.50000
290.0	0.50005	0.50004	0.50002	0.50002	0.50001	0.50000	C.50000	0.50000	0.50000	0.50000
292.5	0.50007	0.50005	0.50003	0.50002	0.50001	0.50000	C.50000	0.50000	0.50000	0.50000
295.0	0.50010	0.50007	0.50003	0.50003	0.50002	0.50000	C.50000	0.50000	0.50000	0.50000
297.5	0.50013	0.50010	0.50005	0.50003	0.50002	0.50000	C.50000	0.50000	0.50000	0.50000
300.0	0.50019	0.50014	0.50010	0.50007	0.50005	0.50003	C.50000	0.50000	0.50000	0.50000
302.5	0.50027	0.50020	0.50014	0.50010	0.50007	0.50005	C.50000	0.50000	0.50000	0.50000
305.0	0.50039	0.50029	0.50021	0.50016	0.50011	0.50008	C.50000	0.50000	0.50000	0.50000
307.5	0.50057	0.50043	0.50032	0.50024	0.50018	0.50013	C.50000	0.50000	0.50000	0.50000
310.0	0.50084	0.50065	0.50049	0.50037	0.50028	0.50021	C.50000	0.50000	0.50000	0.50000
312.5	0.50125	0.50098	0.50076	0.50059	0.50045	0.50035	C.50000	0.50000	0.50000	0.50000
315.0	0.50187	0.50149	0.50118	0.50093	0.50073	0.50047	C.50000	0.50000	0.50000	0.50000
317.5	0.50280	C.50227	0.50183	0.50148	0.50118	C.50094	C.50075	0.50059	0.50046	0.50036
320.0	0.50420	0.50347	0.50285	0.50234	0.50191	C.50155	C.50126	0.50111	0.50082	0.50065
322.5	0.50628	0.50528	0.50443	0.50370	0.50308	0.50255	0.50211	0.50174	0.50143	0.50117
325.0	0.50934	0.50800	0.50682	0.50580	0.50492	0.50416	C.50351	0.50295	0.50247	0.50206
327.5	0.5138C	C.51201	0.51043	0.50904	0.50781	C.50672	C.50578	0.50495	0.50423	0.50361
330.0	0.52018	C.51786	0.51578	0.5139C	0.51222	C.51072	0.50939	0.50820	0.50714	0.50621
332.5	0.52917	C.52623	0.52354	0.52109	0.51886	C.51683	0.51499	0.51333	0.51183	0.51048
335.0	0.54157	C.53795	0.53459	0.53148	0.52860	C.52594	C.52350	0.52125	0.51919	0.51729
337.5	0.55832	0.55400	0.54993	0.54611	0.54253	C.53517	C.53604	0.53311	0.53038	0.52784
340.0	0.58241	0.57543	0.57069	0.56618	0.56189	0.55782	C.55397	0.55032	0.54688	0.54362
342.5	0.60881	0.60330	0.59800	0.59290	0.58800	C.58329	0.57878	0.57445	0.57031	0.56635
345.0	0.64431	0.63851	0.63287	0.62739	0.62207	C.61691	0.61191	0.6076	0.60236	0.59781
347.5	0.68743	0.68166	0.67601	0.67046	0.665C3	C.65572	0.65451	0.64942	0.64444	0.63958
350.0	0.73824	0.73290	0.72763	0.72242	0.71728	C.71221	0.70721	0.70228	0.69742	0.69261
352.5	0.79627	C.75177	0.78731	0.78288	0.77848	C.77411	C.76978	0.76548	0.76122	0.75699
355.0	0.86042	0.85716	0.85392	0.85068	0.84745	C.84424	C.84104	0.83784	0.83466	0.83149
357.5	0.92903	0.92732	0.92561	C.9239C	0.92219	C.92249	0.91878	0.91708	0.91537	0.91367
360.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	0.99999

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\bar{\theta}$  AND  $\Phi$  - Continued(f)  $\bar{R} = 5.1$  to  $6.0$ 

$\Phi$ , deg	P( $\Phi$ ) for $\bar{R}$ of -									
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
2.5	0.08802	0.08972	0.09141	0.09311	0.09460	0.09649	0.09818	0.09966	0.10155	0.10323
5.0	0.17166	0.17480	0.17793	0.18105	0.18416	0.18725	0.19033	0.19340	0.19645	0.19949
7.5	0.24716	0.25135	0.25546	0.25955	0.26359	0.26759	0.27156	0.27549	0.27938	0.28323
10.0	0.31208	0.31673	0.32130	0.32580	0.33023	0.33458	0.33886	0.34307	0.34720	0.35127
12.5	0.36517	0.36981	0.37434	0.37875	0.38306	0.38726	0.39134	0.39532	0.39920	0.40296
15.0	0.40656	0.41083	0.41493	0.41885	0.42270	0.42638	0.42993	0.43334	0.43662	0.43978
17.5	0.43744	0.44105	0.44450	0.44779	0.45092	0.45390	0.45674	0.45943	0.46198	0.46440
20.0	0.45945	0.46234	0.46506	0.46762	0.47022	0.47227	0.47438	0.47636	0.47820	0.47992
22.5	0.47451	0.47670	0.47873	0.48061	0.48234	0.48394	0.48542	0.48777	0.48902	0.48916
25.0	0.48443	0.48601	0.48745	0.48876	0.48955	0.49102	0.49200	0.49288	0.49367	0.49439
27.5	0.49474	0.49183	0.49280	0.49367	0.49445	0.49514	0.49575	0.49630	0.49678	0.49720
30.0	0.49461	0.49534	0.49598	0.49653	0.49702	0.49744	0.49781	0.49813	0.49841	0.49865
32.5	0.49693	0.49740	0.49780	0.49814	0.49844	0.49869	0.49890	0.49908	0.49924	0.49936
35.0	0.49828	0.49857	0.49882	0.49902	0.49920	0.49934	0.49946	0.49956	0.49964	0.49971
37.5	0.49905	0.49923	0.49937	0.49949	0.49959	0.49967	0.49974	0.49979	0.49983	0.49987
40.0	0.49948	0.49958	0.49967	0.49974	0.49980	0.49984	0.49987	0.49990	0.49992	0.49994
42.5	0.49971	0.49978	0.49983	0.49987	0.49990	0.49992	0.49994	0.49995	0.49996	0.49997
45.0	0.49984	0.49988	0.49991	0.49993	0.49995	0.49996	0.49997	0.49998	0.49998	0.49999
47.5	0.49991	0.49994	0.49995	0.49997	0.49997	0.49998	0.49999	0.49999	0.49999	0.49999
50.0	0.49995	0.49997	0.49998	0.49998	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000
52.5	0.49997	0.49998	0.49999	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000
55.0	0.49999	0.49999	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
57.5	0.49999	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
60.0	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
62.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
65.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
67.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
70.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
72.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
75.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
77.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
80.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
82.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
85.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
87.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
90.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
92.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
95.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
97.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
100.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
102.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
105.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
107.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
110.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
112.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
115.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
117.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
120.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
122.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
125.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
127.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
130.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
132.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
135.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
137.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
140.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
142.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
145.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
147.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
150.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
152.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
155.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
157.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
160.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
162.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
165.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
167.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
170.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
172.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
175.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
177.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
180.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\theta$  AND  $\Phi$  - Continued

(f)  $\bar{R} = 5.1$  to  $6.0$  - Concluded

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\bar{\theta}$  AND  $\Phi$  - Continued(g)  $\bar{R} = 6.0$  to 15.0

$\Phi$ , deg	P( $\Phi$ ) for $\bar{R}$ of -									
	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
2.5	0.10323	0.11994	0.13644	C.1526E	0.16865	C.18432	C.19966	0.21466	0.22929	0.24354
5.0	0.19949	0.22910	0.25718	C.2836C	0.30827	C.33115	C.35219	0.37140	0.3888C	0.40445
7.5	0.28233	0.31956	0.35181	0.37995	0.40410	0.42447	C.44136	0.45514	0.46618	0.47488
10.0	0.35127	0.38792	0.41761	0.44095	0.45876	C.47194	C.48141	0.488C1	0.49247	0.49540
12.5	0.40297	0.43512	C.45832	C.47429	C.48478	C.49136	C.49530	0.49755	0.49878	0.49941
15.0	0.43978	0.46499	C.48C8C	C.49008	0.49518	C.49779	0.49905	0.49962	0.49985	0.49995
17.5	0.4644C	C.48235	0.49193	C.49660	0.49868	C.49953	C.49984	0.49995	0.49999	0.50000
20.0	0.47992	0.49167	0.49689	0.49866	0.49969	C.49991	C.49998	0.49999	0.50000	0.50000
22.5	0.48916	C.49631	C.49890	C.49971	C.49993	C.49999	0.50000	0.50000	0.50000	0.50000
25.0	0.49439	C.49845	0.49964	C.49993	0.49999	C.50000	0.50000	0.50000	0.50000	0.50000
27.5	0.4972C	0.49939	0.49989	C.49998	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
30.0	0.49865	0.49977	0.49997	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
32.5	0.49937	0.49992	0.49999	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
35.0	0.49971	0.49997	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
37.5	0.49987	0.49999	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
40.0	0.49994	0.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
42.5	0.49997	0.50000	0.50000	C.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
45.0	0.49999	0.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
47.5	0.49999	0.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
50.0	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
52.5	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
55.0	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
57.5	0.50000	0.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
60.0	0.50000	C.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
62.5	0.50000	C.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
65.0	0.50000	C.50000	0.50000	0.50000	0.50000	C.50000	C.50000	0.50000	0.50000	0.50000
67.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
70.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
72.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
75.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
77.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
80.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
82.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
85.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
87.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
90.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
92.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
95.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
97.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
100.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
102.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
105.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
107.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
110.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
112.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
115.0	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
117.5	0.50000	C.50000	0.50000	0.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
120.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
122.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
125.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
127.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
130.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
132.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
135.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
137.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
140.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
142.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
145.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
147.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
150.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
152.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
155.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
157.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
160.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
162.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
165.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
167.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
170.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
172.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
175.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
177.5	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000
180.0	0.50000	C.50000	0.50000	C.50000	C.50000	C.50000	C.50000	0.50000	0.50000	0.50000

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\theta$  AND  $\Phi$  - Continued(g)  $\bar{R} = 6.0$  to 15.0 - Concluded

$\Phi$ , deg	P( $\Phi$ ) for $\bar{R}$ of -									
	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
182.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
185.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
187.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
190.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
192.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
195.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
197.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
200.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
202.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
205.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
207.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
210.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
212.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
215.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
217.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
220.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
222.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
225.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
227.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
230.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
232.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
235.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
237.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
240.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
242.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
245.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
247.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
250.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
252.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
255.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
257.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
260.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
262.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
265.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
267.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
270.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
272.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
275.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
277.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
280.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
282.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
285.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
287.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
290.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
292.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
295.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
297.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
300.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
302.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
305.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
307.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
310.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
312.5	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
315.0	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
317.5	0.50002	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
320.0	0.50006	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
322.5	0.50013	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
325.0	0.50029	0.50003	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
327.5	0.50063	0.50008	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
330.0	0.50135	0.50023	0.50003	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
332.5	0.5028C	0.50061	0.50011	0.50002	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
335.0	0.50561	0.50155	0.50036	0.50007	0.50001	0.50000	0.50000	0.50000	0.50000	0.50000
337.5	0.51083	0.50369	0.50110	0.50029	0.50006	0.50001	0.50000	0.50000	0.50000	0.50000
340.0	0.52008	0.50833	0.50311	0.50104	0.50031	0.50008	0.50002	0.50000	0.50000	0.50000
342.5	0.5356C	0.51765	0.50807	0.50340	0.50132	0.50047	0.50015	0.50005	0.50001	0.50000
345.0	0.56022	0.53501	0.51920	0.50992	0.50482	0.50221	0.50095	0.50038	0.50014	0.50005
347.5	0.59703	0.56488	0.54168	0.52571	0.51522	0.50864	0.50470	0.50245	0.50122	0.50058
350.0	0.64873	0.61208	0.58239	0.55905	0.54124	0.52806	0.51859	0.51199	0.50753	0.50460
352.5	0.71677	0.68044	0.64819	0.62005	0.59590	0.57553	0.55864	0.54486	0.53382	0.52512
355.0	0.80051	0.7790	0.74282	0.71640	0.69172	0.66885	0.64781	0.62860	0.61120	0.59555
357.5	0.89677	0.88005	0.86356	0.84732	0.83135	0.81568	0.80033	0.78534	0.77071	0.75646
360.0	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\theta$  AND  $\Phi$  - Continued

(h)  $\bar{R} = 16.0$  to  $25.0$

TABLE II. - PROBABILITY  $P(\Phi)$  THAT DIRECTION OF RADIUS VECTOR IS BETWEEN  $\bar{\theta}$  AND  $\Phi$  - Concluded  
 (h)  $\bar{R} = 16.0$  to  $25.0$  - Concluded









